

INSIDE DOPE

by GEORGE F. TAUBENECK

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Stories of the Week

Quizzed over the radio, a septuagenarian almost broke up the show.

"Grandad," bubbled the radio interlocutor, "I'll bet wasp-waists were fashionable when you were a young buck. Remember 'em?"

"Do I?" cackled the septuagenarian. "That's when I was stung."

Honor and Obey?

"Listen to this, Lester," commanded Mrs. McNag. "It says here in the evening paper that more than 5,000 American women are studying law this year."

"Yes, dear."

After a short silence he bittered: "And the other 80 million American women are laying it down to their men."

While covering a convention in Palm Beach, the writer bought a tall drink of orange-tangerine-grapefruit nectar at one of those tiny juice joints. It was a lazy, drift morning, and we fell into a desultory conversation with the juice man.

Been a grocer in Iowa, he informed us, and had moved to Florida only three years ago. The citrus drink business, he confided, wasn't so good. Wish he was back in Iowa and selling groceries again. Fellow could make a decent living thataway.

"How come you made the move? Climate?"

"Naw. My doctor told me I was at the Dangerous Age. 'When a fella gets to be 50,' he told me, 'he's in a rut, and he don't like it. That's why he's dangerous. Needs a change of scenery. Either get yourself a new woman or move to a different place,' the Doc told me."

"Thass howcum I moved to Florida. My wife, she's narrow-minded."

Outsmarted Again

Packing his bag to attend a convention in Chicago, Joe Footmouth heard the Little Woman pose a wistful question.

"Can't I go with you, honey?"

"We-ell," hedged the husband, "there will be a constant series of meetings, and I'm afraid you won't be entertained."

"But I need some new clothes."

"Why go all the way to Chicago for that?" asked the fellow logically. "You can get all the clothes you want right here."

"I can?" exclaimed wifely triumphantly. "That's all I wanted to hear! Let's see. . . . I'll need about three hundred dollars. . . ."

Women Triumphant

"Margie," gushed a neighbor. "You're so radiant this morning. Whah Hoppen?"

"Oh, it's so wonderful," gleeed Margie. "My husband has had a nervous collapse, and his doctor ordered us to spend three months in Florida."

Twisteros:

(1) One woman says to another, "Our doctor sent me down here for my husband's health."

(2) "I understand that your husband has been ill. What's he doing for his ailment?"

"His doctor prescribed a shot of rye whiskey and 2 aspirins every night before retiring."

(Concluded on Page 6, Column 1)

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Frozen Food Meet Will Spotlight Proper Handling

CHICAGO—Proper preservation of frozen foods at all levels of distribution will be a major topic for discussion at the 1952 Frozen Foods Industry convention, which opens next Monday, March 3, at the Conrad Hilton hotel in Chicago, and continues through March 7.

Organizations who will participate in the convention include the National Association of Frozen Food Packers; the National Wholesale Frozen Food Distributors Association; the National Food Brokers Association; and the National Association of Refrigerated Warehouses.

While there will be no formal, centralized display or exhibits in conjunction with the convention, some equipment manufacturers and frozen food companies will have modified displays in sample rooms at the hotel.

Two panel meetings planned by the Frozen Food Packers Association will delve deeply into proper storage and handling methods. The first panel session, on Tuesday morning, March 4, will concern "the effects of temperature and length of storage on the quality of frozen foods." To be covered in the panel on Wednesday morning, March 5, will be a discussion of "what occurs" (Concluded on Page 4, Column 3)

Sargent, Oliver Move Up at Westinghouse

MANSFIELD, Ohio—Appointments of R. J. Sargent as manager of major appliances and R. M. Oliver as manager of appliance specialties were announced by T. J. Newcomb, sales manager of the Westinghouse Electric Appliance Div.

The appointments are new posts in the Westinghouse organization, Newcomb said, and are designed to fill the need for the supervision and coordination of the two appliance product groups in line with the company's expansion program in the electric home appliance field.

Sargent will be responsible for the supervision and coordination of all activities associated with major appliance product departments. These include engineering, production, advertising, sales, and services for such (Concluded on Back Page, Column 4)

Canadian RSES Meeting Scheduled for April 6-8

MONTREAL, Que., Can.—Annual meeting of the Interprovincial Association of the Refrigeration Service Engineers Society will be held at the Mount Royal hotel here April 6 through 8, Sunday through Tuesday.

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Material Cuts Are Deep Next Quarter; Bright Future Seen

WASHINGTON, D. C.—In announcing official allocations of controlled materials for the consumer goods industries for the second quarter, which allotments are the lowest yet, NPA Administrator Henry H. Fowler held out definite hopes that the low point in materials allotments have been reached, and that more materials can probably be expected in the latter half of the year.

Manufacturers of refrigerators, home freezers, and other major appliances will get, in the second quarter:

- 50% of the steel
- 35% of the copper wire mill products
- 30% of the copper brass mill products
- 30% of the aluminum products that they were using in the base period. This represents reduction in copper and aluminum products from the first quarter.

Fowler said that if "serious shortages of essential consumer goods—such as refrigerators, ranges, washers, and vacuum cleaners"—should (Concluded on Page 4, Column 1)

Mich. Bill Asks List Price or Rental Fee For Dairy Equipment

LANSING, Mich.—A bill which would require dairy and ice cream companies to charge retailers either list prices or a "reasonable rental" for refrigeration equipment has been introduced in the Michigan State Legislature here.

Promoted by the Refrigeration Contractors Association of Detroit, it strikes at the alleged practice of dairies' doing free service for retailers and giving them refrigeration equipment at no charge or at below cost.

Violation of the law would be considered a misdemeanor.

The measure is known as Senate Bill No. 49, and was introduced by State Senator Geo. A. Higgins. It has already passed the first hurdle, having been returned to the Senate (Concluded on Back Page, Column 2)

Now on a National Scale

Freezer Owners Assn. Expands Deferred Payment Plan on Freezers, Foods

NEW YORK CITY—The Freezer Owners Association of America, Inc. (FOA), promoting and providing a complete frozen food service to those members of the public who have low temperature storage facilities, has recently been expanded in two ways, reports John Bess, who originated the program.

The program is now being made available on a national scale after a year of what Bess terms as "successful trials" in Hartford, Philadelphia, Miami, and Washington, D. C. And for apartment dwellers who may not have room in their apartment for a home freezer, Freshmaster Corp. in New York City has made the plan available through the use of 15-unit "warm room" refrigerated locker systems for basement or auxiliary room installation.

First installation of the "Zero-Stor" freezer locker system was made to provide 15 families in a

WSB Okays 10% Pay Increase for Commission Men

WASHINGTON, D. C.—Commission salesmen may now receive the 10% and cost-of-living pay increases previously allowed wage earning employees, the Wage Stabilization Board ruled recently.

Rules for granting such increases, without prior approval of the WSB, are spelled out in Wage Regulation 20 issued on Feb. 13.

They provide that the 10% increase in pay allowed to wage-earning employees by Regulation 6 and the cost-of-living increase permitted by Regulation 8 can be applied to commission earnings as established from one of three base periods.

These base periods are the first pay day period ending on or after Jan. 15, 1950, the average of commission earnings over the year ending June 30, 1950; or the average of commission earnings over the calendar year 1950.

The board has divided commission salesmen into two groups, for purposes of the regulation. One group includes those salesmen making 2% commission or less. The other group covers those making more than 2%.

If those salesmen in the 2% or less group are also paid a base salary, the amount of the allowed increase can be applied directly to that salary. (Concluded on Back Page, Column 1)

Fedders Cuts Prices \$20 on 2 Room Units

NEW YORK CITY—Price reductions of \$20 on each of two room air conditioners have been announced by Fedders-Quigan Corp.

The ½-ton unit now lists at \$229.95 and the ⅓-ton air conditioner, with the new automatic comfort control, at \$329.95.

The new prices were announced at a recent dealer meeting at the Hotel Plaza, attended by more than 150 retailers from the metropolitan New York area.

In outlining the sales program for this year, Frank A. Mitchell, sales manager, predicted that sales of room air conditioners in the New York area would increase "more than 50%" this year over 1951. He also estimated that industry sales nation- (Concluded on Back Page, Column 1)

Household Unit Sales In 1951 Hit 3,925,000

Decline Sharpest from '50 Record Year; Trend to Larger Sizes Continues

DETROIT—World sales of household electric refrigerators by U. S. manufacturers in 1951 totaled 3,925,000 units, according to estimates made by AIR CONDITIONING & REFRIGERATION NEWS.

Sales of electric refrigerators reported to National Electrical Manufacturers Association (NEMA) by producers who report to that organization totaled 3,797,260 units in 1951.

While 1951 sales were more than 2 million units less than the all-time high of 6,225,000 units marked up in 1950, when the industry was pushing out units as fast as possible in anticipation of possible shut-offs in production, the total for the year was not too far behind the totals racked up in the next two best years in the industry's history (1948 and 1949).

The downturn in manufacturers sales continued in December, NEMA member companies reporting December sales of 211,442 units, compared with 394,269 in the same month of 1950.

A breakdown of the NEMA report by cabinet sizes showed that the 8-cu. ft. size was the top category as it was in 1950, with well over the one fourth of the total number being sold in that size. However, the trend to larger sizes was vividly demonstrated by the fact that the next largest category was the 11-cu. ft. and over category. It is noteworthy too that the total of all units 10 cu. ft. and over was greater than the 8-cu. ft. category.

Export sales by members of the NEMA group in 1951 increased over 1950, the totals being 267,761 in 1951 as compared with 209,979 in 1950.

Since the value of the household electric refrigerators sold is not reported in the sales tabulations, no official estimate of an average retail price can be made. The Electric Association of Philadelphia, reporting on retail sales in and around the Philadelphia area, showed the average retail price of refrigerators in that area to be \$310 in 1951 (in 1950 the average retail price in the Philadelphia area was reported to be \$277).

However, taking into consideration the high percentage of apartment house sales and other considerations in a metropolitan market such as Philadelphia, and in light of the evidence of an increase in sales of the larger-size cabinets, it is likely that the average price was \$320 or \$325.

Range and Water Heater Sales Dropped In '51

NEW YORK CITY—Sales of electric ranges and electric water heaters in 1951 declined from 1950, reports compiled by NEMA reveal.

Manufacturers' sales of electric ranges reported to NEMA totaled 1,269,509 in 1951, compared with 1,402,382 in 1950. December sales were 73,241 units, compared with 124,380 in December, 1950.

Water heater sales by manufacturers in the NEMA group totaled 674,533 units, compared with 809,554 in 1950. December sales were 35,694 units, against 71,763 in the previous December.

NPA Rejects 77.4% of Construction Requests

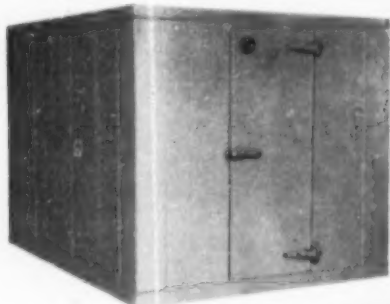
WASHINGTON, D. C.—Of the construction applications filed with the National Production Authority for the first quarter, 77.4% were denied, the agency announced recently.

A total of 2,773 applications for commercial or community construction were filed and 1,901 were denied. Of the remainder, 439 received allotments of controlled materials, 67 required such small amounts of controlled materials they were permitted to get them without authorization, 51 were approved without allotments of controlled materials, and 315 were transferred or cancelled. (Concluded on Page 4, Column 2)

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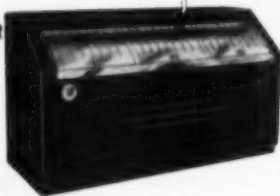


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Years ahead in design and construction—features interior construction of heavy galv. steel—exterior paint grip, zinc grip steel finished in gray baked enamel. . . . Tongue in groove construction. . . . 1" compressed Fiberglas insulation.

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5 N. Y. Appliance Dealers Merge To Form Chain

BROOKLYN—Five formerly independent appliance, radio, and television dealers operating nine stores in Brooklyn, Astoria, and Flushing have merged their assets to form a chain to be known as Good Neighbor Stores, Inc.

The merger was made to "achieve economies of overhead and efficiencies of promotion, merchandising, and sales."

The five retailers have each become stockholders and officers of the new corporation. They are:

Martin Schoenfeld (Schoenfeld Electric Co., Inc.), president; Arthur Swire (Swire Bros., Inc.), vice president; Emmanuel Y. Periman (Periman Pianos, Inc.), secretary; Jules Brecher (Lincoln Co., Inc.), treasurer; and Benjamin Zises (Hi-Grade Gas Range & Refrigeration Co., Inc.), assistant treasurer.

Leo Swire and Zises have been named buyers for the chain, whose offices are located at 552 Fifth Ave. here.

Stockholders indicated that no other established retailers will be taken into the chain. If new outlets are desired, the chain will build them in its own name.

All stores will carry the same lines, which will be centrally warehoused and centrally serviced through contracts with servicing agencies.

The chain expects to do a \$10,000,000 volume this year, which would make it about fourth or fifth in size in metropolitan New York City.

Appliances, Not Jet Parts, To Come from Louisville

LOUISVILLE, Ky.—Because of a change in an Air Force jet engine parts schedule, the General Electric Co. will be able to start production on electrical appliances in its plants here as soon as they are built, Clarence H. Linder, general manager of the major appliance division, indicated recently.

The company is constructing six buildings in a 700-acre "appliance park" here where it had planned to produce major appliances after completing defense production.

However, slowing of the production schedule on jet engine parts by the Air Force will enable G-E to fulfill its contract in other existing plants without utilizing the new structures for that purpose.

"This change simply means we will reach a higher volume of home appliance production at an earlier date than originally anticipated," Linder declared.

Refrigerated Milk Trucks May Transport Blood Plasma In Emergency

UTICA, N. Y.—A plan to transport blood plasma in refrigerated milk trucks if and when a military emergency arrives was proposed at a meeting of the Utica Milk Dealers' Association here.

Dr. David E. Bigwood, Jr., city health officer, proposed the plan and the 30 dealers present unanimously approved any such service that is feasible.

Walter McCarthy, secretary of the dealer's exchange, was assigned to survey equipment currently available. He will be assisted by Claude R. Woodward, milk sanitarian in Dr. Bigwood's department.

This was the first of two ways suggested by Dr. Bigwood showing how dealers could assume a role in the Civil Defense program. He said blood plasma cannot be frozen. It must be kept at 32 to 35° F. This automatically would eliminate the use of ice cream and frozen food trucks for its transportation.

However, milk trucks containing the refrigerated cabinets used for the storage of highly perishable dairy goods like butter and cheese, could be used for transporting blood plasma, it was pointed out.

The need for such transportation would occur if a neighboring town or city had its facilities and supplies bombed or destroyed, the physician said. Whenever possible, the trucks would be used to shuttle the plasma to airplanes waiting to do the "big lift."

Baltimore Dealer Fined for Violation of Regulation W

BALTIMORE—Failure to obtain the down payment required by Regulation W in the sale of television sets cost Leonard Rosen \$500 and costs and his firm, Rosen's Inc., the same amount in fines imposed by the U. S. District Court here recently.

The local dealer pleaded guilty to the charges.

Four Firms Join REMA

WASHINGTON, D. C.—Four new members have joined the Refrigeration Equipment Manufacturers Association, W. Vernon Brumbaugh, executive secretary, announced recently.

They are Carrier Corp.; Penquin Products, Inc., of Detroit; Freezer Box Div., Annapolis Yacht Yard, Inc.; and Bailey & Perkins Co., of Detroit.

Yancey Elected Pres. of Atlanta Electrical Assn.

ATLANTA—The Atlanta Electrical Association, composed of a large number of retailers and distributors of electrical appliances, has elected Ed F. Yancey, Jr. of Advanced Refrigeration, Inc. as president for the ensuing year. He succeeds LeRoy Kise, of Rich's, Inc.

John H. Harte, of Haverty's, was elected vice president, and Allen H. Crook, honorary secretary.

Directors elected for two-year terms: Howard Wilson, Kise, and W. H. Sharpe. Arthur Strain was elected a director for one year. Hold-over directors include J. C. Brown, Vance Woodcox, and J. H. Cawthon.

OPS Explains GCPR Term 'Purchaser of Same Class'

WASHINGTON, D. C.—What the Office of Price Stabilization means by a "purchaser of the same class" under the General Ceiling Price Regulation was further explained recently by Joseph H. Freehill, acting chief counsel for OPS.

Under terms of the regulation, a seller's ceiling price is the highest price at which he delivered a commodity during the base period to a purchaser of the same class.

This is Freehill's explanation:

"Where a seller in the base period customarily charged different prices to two different customers in sales made at the same time, each of such customers is to be considered as a different class of purchaser in view of the seller's pricing practice, in spite of the fact that the two different customers may not differ functionally."

"In such a situation, the seller's ceiling price for sales to each of such customers would be the highest price at which he delivered the commodity to that particular customer during the base period."

"For example, if a seller during the base period normally charged list price to one or more customers, described as customers A, but in sales made at the same time normally gave a discount of 10% to customers B, and a discount of 15% to customers C, customers A, B, and C are each considered as a different class of purchaser."

"Accordingly, under the General Ceiling Price Regulation customers C must now continue to be given the discount of 15%, customers B must continue to be given the discount of 10%, and customers A may be charged the full list price."

Three Get Mitchell Franchise

CHICAGO—New franchises to handle the 1952 line of Mitchell window-type room air conditioners have been awarded to three more major appliance distributors, it was announced by E. A. Tracey, vice president in charge of the Air Conditioning Div. of The Mitchell Mfg. Co. here.

The new distributors are: Currey's Wholesale Distributors, Nashville, Tenn.; Electric Sales & Service Co., Atlanta; and Electro-Plance Distributors, Inc., Milwaukee.

Frozen Trout Serves as Souvenir for Denver Air Terminal Visitors

DENVER—An unusual refrigeration project built by City Refrigeration Co., contractor here, is a custom refrigerated display case at the Denver Municipal Airport terminal building.

Constructed of light blonde hardwood, and it contains two levels of glass shelving. The case maintains a temperature of -10°, and is used exclusively to display unusual souvenirs of the Rocky Mountain region. Included are Rocky Mountain trout, packaged two to a plastic bag; Colorado pullets; smoked turkey; and barbecued poultry.

The case, 6 ft. long and 5 ft. high, has a double Thermopane glass slanting front behind which the neat rows of sharp-frozen delicacies appear. Located in the center of the waiting room, it has attracted constant attention ever since the installation a year ago, and many airline passengers, departing from Denver, take along mountain trout or poultry, as an unusual souvenir for their families at home.

The display case was built for Airborne Perishables, Inc., Denver food distributing organization, which specializes in out-of-the-ordinary delicacies. Where flights of only 3 or 4 hours are concerned, the trout are frozen hard enough to reach their destination without further attention, according to the management.

However, if longer flights are contemplated, the passenger may request the stewardess on the airliner to place the fish where they will be exposed to the cold upper atmosphere. Airline passengers can thus arrive home with tasty, fresh trout.

The custom display case is powered by a 1/2-hp. condensing unit, and utilizes two banks of coils, plus a circulating fan to maintain sub-zero temperatures. Its blonde maple exterior harmonizes with woodwork in the ultra-modern building.

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Healthy Humans Are Adaptable**Sudden Changes In Air Temperature, Humidity Not Harmful, Study Finds**

ST. LOUIS—Exposure to sudden changes in air temperature and humidity as might be experienced when going from an air conditioned space to the hot, humid outdoors or vice-versa puts no physical strain on the average healthy individual.

This was the implication of a paper presented at the annual meeting of the American Society of Heating and Ventilating Engineers here which described research conducted by the University of Illinois College of Medicine under the sponsorship of ASHVE in addition to the U. S. Public Health Service.

The subjects who participated in the experiments went from a comfortable room maintained at 76° F. and 30% relative humidity to a room kept at 98.5° F. and 66% r.h. where they stayed for one or two hours and then returned to the comfortable room, according to Dr. F. K. Hick, who presented the paper which he had prepared in collaboration with Dr. Robert W. Keeton, Tohru Inouye, Nathaniel Glickman, and M. K. Fahnestock.

Previous experiments along these lines involved young men dressed in cotton union suits to simplify the study and permit accuracy in measuring skin temperature, but the most recent studies used subjects dressed in summer weight clothing.

"Although additional clothing led to measurable difference, the subjective thermal sensations of the men entering the hot room were the same whether they were dressed in union suits or summer clothing," it was said.

"Moreover, the subjective thermal sensations during the one and two hours exposure continued the same regardless of the differences in clothing."

In other words, the men felt just as hot and humid regardless of the type of clothing they were wearing. Similarly, "thermal sensations on entering the comfortable room [from the hot room] were the same whether the men were dressed in summer clothing or in union suits," it was concluded. "They all felt cool regardless of the clothing, the amount of water it contained, and the humidity of the environment. The initial coolness was followed by a feeling of less coolness during the hour."

When the subjects first moved into the hot room, "the heat regulatory mechanisms were activated and made adjustments to the new environment, as evidenced by a sharp rise in mean skin temperature."

The skin temperature rose faster for those subjects dressed in union suits as compared with the others dressed in summer clothing due to the greater insulation provided by the clothing. At the end of an hour, however, the skin temperature was slightly higher for those with more

clothing when the previous exposure had been to low humidity.

Response of rectal temperature on entering the hot room was the same for both groups of subjects, but at the end of two hours it was slightly higher for those with the summer clothing.

"The physiological adjustments imposed by the sudden return to a comfortable environment from a hot room were affected by the insulation offered by the clothing and the moisture it contained," the study indicated.

On moving from the hot room to the comfortable environment, all the subjects felt cool, but the skin cooling was less rapid for those with more clothing because of the added insulation even though the summer clothing contained an additional amount of moisture.

'Combination Unit' Sales Under Reg. W Explained

WASHINGTON, D. C.—In a recent interpretation of Regulation W, the Federal Reserve Board explained that a "combination unit," for purposes of the regulation is one where the components are so manufactured as not to be reasonably susceptible of being sold separately.

Thus, in the case of a mechanical household dishwasher-sink combination, the entire unit would be considered a Group B article on which a down payment of 15% with 18 months to pay the balance is required.

However, the board said, "a mechanical dishwasher which is manufactured as a separate unit, and a counter top-sink bowl unit similarly manufactured and offered for sale would not constitute a 'combination unit,' even though they may be sold and delivered at or about the same time and installed so that the dishwasher may become an attached or supporting part of the counter top-sink bowl."

"In such a case, that portion of the credit applicable to the dishwasher would be subject to Group B, while that portion of the credit to the counter top-sink bowl would be subject to Group D (10% down, 36 months to pay); and the resulting combined credit may be treated as provided by paragraph (d) of section 6 of the regulation."

Paragraph (d) of section 6 provides that in a case like this the dealer would treat the dishwasher and sink as separate credits, taking 15% down on the dishwasher and 10% down on the sink.

He then could treat the balances separately, spreading dishwasher payments over 18 months and sink payments over 36 months. Or he could combine them using the maximum maturity period of the unit with the larger balance.

Thus, if the balance on the dishwasher were larger than that of the sink, the combined balance could be paid in 18 months. If the balance on the sink were larger than that on the dishwasher, payments could be spread over 36 months.

Proctor 'Partnership Plan' Helps Dealers Meet Competition

PHILADELPHIA—Proctor Electric Co. here recently announced a new "partnership plan" to help dealers in highly competitive areas to meet lower price competition to the Proctor line of housewares.

The plan will permit such dealers to use lower suggested minimum prices by lowering the wholesale cost to the distributor and dealer. Proctor intends to make up the loss by eliminating cooperative advertising allowances and "spiffs" on any items carrying the lower prices. Proctor national advertising will continue to feature the higher suggested prices.

Idea behind the plan is to allow dealers in competitive areas to use the lower priced housewares as specials and then sell customers up to the higher priced products.

Joseph Tiers, general merchandise manager for Proctor, said that the company is providing its sales force with materials for instructing dealers on the techniques of selling customers up.

As far as the Office of Price Stabilization is concerned, price ceilings on Proctor's branded products are established by a special order that permits the manufacturer to change his invoice cost to distributors and dealers without changing the retail ceiling prices. As long as suggested prices are revised downward, OPS has no objections.

Cooling Panels Can Handle Half of Air Conditioning Load, ASHVE Hears

CHICAGO—For many air conditioning design conditions, properly applied cooling panels will handle about one half of the total cooling load, according to A. T. Jörn, chief development engineer, Architectural Products Division of Burgess-Maning Co.

Speaking at a recent meeting of the Illinois Chapter, American Society of Heating and Ventilating Engineers, he said that panel heating and cooling should be considered together, for a panel is seldom used for cooling only. In his opinion, it is often cheaper to utilize a panel and carry away the absorbed heat in a 1/4-in. pipe than to use only a conventional air conditioning system and carry away the same amount of heat in a 10 by 10-in. duct.

Advantages of panel cooling, as described by Jörn, include a large reduction in the load to be handled by the air conditioning system so that smaller ducts may be used and considerable savings in space may be thus effected, a reduction in the room mean radiant temperature so that higher air temperatures may be carried (thus lessening thermal shock), a reduction of drafts within a room because air quantities have been reduced, and an increase in the temperature tolerance of the occupants from approximately 2 to 6° (i.e.: the permissible temperature variation before perception of a change in temperature occurs).

The speaker recommended that

only one surface of a room be used for the panel and that—~~the~~ surface be the ceiling, which he says is the only suitable location for a panel which will be used for both heating and cooling.

Under many summer conditions, an ordinary ceiling acts as a heating panel because it absorbs heat from lights and heat which enters the room through windows and glass blocks.

A ceiling panel will prevent this action, said Jörn.

In discussing the advantages of metal ceiling panels, the speaker described a type made up of metal pans which may be acoustically perforated and are clamped or snapped to the overhead tubes or coils. This type of panel has relatively little thermal lag, and for consistent regulation of mean radiant temperature of the room, he recommended continuous circulation in the coils together with the use of a modulating room thermostat.

With regard to condensation problems, Jörn pointed out that the latent heat load, or more specifically the dewpoint of the room air, limits the cooling panel temperature which may be used.

However, in the Chicago area, he said, panel temperatures of 70 to 80° may be used where there is no dehumidification. Lower temperatures, of course, may be used where dehumidification lowers the dewpoint of the air.

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by qualifying for the Westinghouse Air Conditioning Franchise in your trading area.

SURE OF THE PRODUCT

The Westinghouse UNITAIRE®, in 2-, 3-, 5- and 8-ton capacities, offers features unsurpassed by any self-contained air conditioner on the market today. Its beautiful lines, modern styling and two-toned finish will blend into most decorative schemes. It's compact, too, with the largest model requiring only 25 1/2 by 51 inches of floor space.

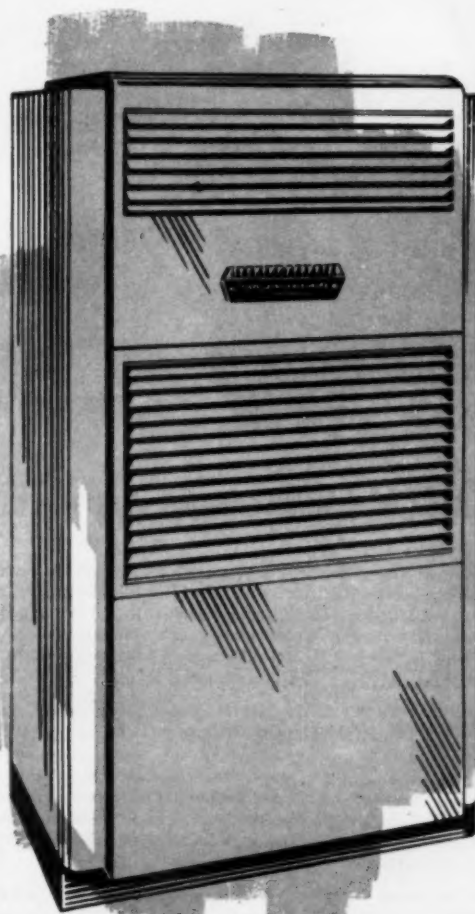
But above all, the UNITAIRE is reliable. Powered by the Westinghouse Hermetically-Sealed Compressor, it has an unequalled record for long life and economical performance with minimum maintenance. For example, a distributor who sold 112 Unitaire Conditioners in 1950 reported use of less than \$100 worth of replacement parts. A large retail chain store having 22 units with a 3-year average age reports no maintenance beyond replacement of a few plastic switch knobs broken by careless employees.

SURE OF ADVERTISING AND PROMOTION SUPPORT

Promoting the sale of Westinghouse air conditioning equipment is an extensive advertising program covering national magazines and industrial and commercial trade papers. A complete promotion program is provided to distributors and dealers, plus a Floor Plan for financing through local banks with the backing of Westinghouse.

SURE OF SALES ACCEPTANCE

When you sell Westinghouse Air Conditioning, you handle a line whose name is immediately recognized and accepted. The millions of dollars spent annually to advertise all Westinghouse products help to build the sales acceptance of every Westinghouse product.



There's opportunity and security—as well as profit—in a Westinghouse Air Conditioning Distributorship or Dealership. We have a few territories open for aggressive, merchandising-minded organizations. Get in touch with us today.

WESTINGHOUSE ELECTRIC CORPORATION
AIR CONDITIONING DIVISION
Hyde Park, Boston 36, Mass.

MORE INFORMATION?

Use Handy Coupon on "What's New" Page of this issue.

Use Key No. for fastest service.

**TROUBLE-FREE****Across-the-Line Starters**

The Bulletin 709 solenoid starter is a favorite for air conditioning and refrigeration because it is good for millions of operations and does its job day in and day out without attention. The double break, silver alloy contacts never require maintenance. There is only one moving part—no trouble-making pins, pivots, hinges, or flexible conductors. Write for information.

ALLEN-BRADLEY COMPANY
1313 S. First St.,
Milwaukee 4, Wisconsin



BULLETIN 709
Size 2, Bulletin 709 across-the-line solenoid starter with cover removed.

ALLEN-BRADLEY
SOLENOID MOTOR CONTROL



Materials Cuts--

(Continued from Page 1, Column 3)
threaten, the NPA stands ready to provide relief. He also stated that special provision is being made for single line producers who suffer exceptional hardship.

NPA said that no allotments were made for stainless steel because of the decontrol of chrome stainless steel. Manufacturers were informed that the NPA was allowing each manufacturer the same amount of nickel bearing steel which he was able to get on mill schedule for the first quarter.

Manufacturers of "less essential" consumer items such as costume jewelry, venetian blinds, and the like, are getting more supplies of controlled materials "to keep them from going out of business." It is known also that the NPA is finding that there is something of an abundance of steel about, and that some allotments of copper and aluminum are not being taken up. All this points to the possibility of more liberal allotments of controlled materials later in the year.

Mitchell Franchises 3

CHICAGO—New franchises to handle the 1952 line of Mitchell window-type room air conditioners have been awarded to several major appliance distributors, it was announced by E. A. Tracey, vice president in charge of the Air Conditioning Div. of The Mitchell Mfg. Co.

The new distributors are: All State Pipe Supply Co., Jacksonville, Fla.; Artkraft Electric Supply Co., Salisbury, Md.; and Big Boys, Sunbury, Pa.

Revco Distributors To Meet In Toledo March 5

DEERFIELD, Mich.—Revco, Inc., manufacturer of "Chill Chest" home food freezers will hold its first annual distributor convention March 5 and 6 at the Commodore Perry hotel in Toledo.

This meeting will bring together, for the first time, Chill Chest distributors and representatives from all parts of the United States. The convention keynote will be the unveiling of the 1952 merchandising program and the introduction of the new models.

J. Harold Overmyer, vice president in charge of sales, announces that well over 100 distributors and representatives plan to attend. Program arrangements include an all-day reception for registration of arrivals on March 5.

Plant tour is scheduled for the morning of March 6 with luncheon and business meeting in the afternoon at Tecumseh Country Club, followed by dinner and a full evening of entertainment at the Commodore Perry hotel in Toledo.

NPA Cuts Bldg. Starts--

(Continued from Page 1, Column 3)

The Construction Controls Division allotted only 26,283 tons of carbon steel including 7,522 tons of structural, 1,076,282 tons of copper, and no aluminum.

Except for a few hardship cases, NPA did not authorize the starting of any project which was not involved in the defense effort.

Frozen Food Meeting, Program--

(Continued from Page 1, Column 2)
in the distribution of frozen foods from packer to retailer.

At the Tuesday morning session of the Frozen Food Distributors convention there will be a sales symposium devoted to the subject: "What the American Housewife Thinks of Frozen Foods." This session, an open affair in the North Ballroom for all who are interested, will be presented by Tyler Fixture Corp., Crowell-Collier Publishing Co., and Quick Frozen Foods.

Crowell-Collier will first present the results of a survey comprised of personal interviews with more than 3,000 housewives, covering questions on every phase of frozen food purchases and use in the home.

Following this will be a recorded presentation of unheated "candid microphone" interviews with buyers in hundreds of frozen food cabinets in principal cities.

The National Association of Refrigerated Warehouses will sponsor a luncheon meeting and panel discussion "Operations Zero" on Thursday noon, March 6. This panel session is designed to bring warehousemen and frozen food industry representatives together for a full and frank discussion of their mutual problems.

This luncheon meeting and panel session will be presided over by Jerry P. Johnson, president of NARW, and Harold C. Emerson, a member of NARW's executive committee, will be panel discussion moderator. Warehousemen Harlan J. Nissen of Los Angeles, J. J. Gallery of Boston, and L. J. Fisher of Jersey City will represent the warehousing industry. Dr. H. C. Diehl will serve

as an alternate member of the warehousing group on the panel. Frozen food packers and frozen food distributors will each be represented by two panel members.

Complete Convention Program

PACKERS' CONVENTION PROGRAM

SUNDAY, MARCH 2

3 to 5 p.m.—Meeting of research and standards committee, Room 12.

MONDAY, MARCH 3

10 a.m. to 5 p.m.—Meeting of the board of directors, Room 12.

6 to 9 p.m.—Cocktail party (courtesy of Marathon Corp.) Grand Ballroom.

TUESDAY, MARCH 4

10 a.m. to 12 noon—Panel meeting on "the effects of temperature and length of storage on the quality of frozen foods." Speakers: "Citrus Concentrates"—Dr. W. R. Roy of Minute Maid. "Fruits and Vegetables"—Dr. R. R. Leggett, head of fruit processing division, Western Regional Research Laboratory, USDA. "Meats, Poultry, Seafoods"—(speaker to be announced). South Ballroom. 12:30 to 3 p.m.—All-Industry luncheon, Grand Ballroom. 2 to 6 p.m.—Transportation Committee.

WEDNESDAY, MARCH 5

10 a.m. to 12 noon—Panel meeting on "what occurs in the distribution of frozen foods from packer to retailer." Speakers: "Transportation"—Harold D. Johnson, Transportation economist, PMA. "Storage, Breakup, and Distribution to Retail Outlets"—Dr. K. G. Dykstra, Birds Eye Laboratories, Albion, N. Y. "Retail Outlets"—E. L. Morin, Seabrook Farms, Lower Tower. 12:30 to 4 p.m.—Membership luncheon and annual meeting (meeting limited to members), Upper Tower.

THURSDAY, MARCH 6

8 to 10 a.m.—Meeting of the board of directors, Room 8. 10 a.m. to 5 p.m.—Meeting of the standards and research committee, Room 12. 12:30 p.m.—Luncheon meeting sponsored by the National Association of Refrigerated Warehouses, Boulevard Room, will incorporate panel discussion "Operations Zero" with discussion of relationships be-

tween frozen food producers and distributors and warehousemen.

7 p.m.—All-Industry banquet, Grand Ballroom.

DISTRIBUTORS' CONVENTION PROGRAM

MONDAY, MARCH 3

10 a.m. to 5 p.m.—Meeting of the board of directors, Room 13.

12 noon—Luncheon, Room 13.

TUESDAY, MARCH 4

8 to 9:30 a.m.—Brand breakfasts (distributors only). Birds Eye, Room 1. Dulany, Room 8. Seabrook, Room 9. Snow Crop, Room 10.

9:45 a.m. to 12 noon—Sales symposium devoted to the subject: "What the American Housewife Thinks of Frozen Foods"—the first exclusive presentation of a national survey ever made. The results of over 3,000 interviews in 35 cities covering every phase of frozen food merchandising. Prepared by the research facilities of the Crowell-Collier Publishing Co. in conjunction with "Quick Frozen Foods." The session will also feature "Hidden Microphone Interviews" made at the frozen food cabinets in virtually every large city in America. Developed by Tyler Fixture Corp. in conjunction with QFF.

Also a panel round table discussion of the subject: "You have only started Selling." North Ballroom.

12:30 to 3 p.m.—All-Industry luncheon, Grand Ballroom, Distinguished Merit Award presentation.

WEDNESDAY, MARCH 5

8 to 9:30 a.m.—Brand breakfasts (distributors only). Cedargreen, Room 8. Honor Brand, Room 9. Libby, Room 10. Pict-Sweet, Room 1. 9:45 a.m. to noon—An efficiency symposium including a motion picture film on employee training and discussions of: "How to Cut Delivery Costs." "Better Warehouse Building and Alterations." "Busting Bottlenecks."—South Ballroom.

12:30 to 4 p.m.—Membership luncheon and annual meeting (meeting limited to members.) Speakers will be Alvin Langfield, NWFFD president; Ellis Arnall, former Governor of Georgia and counsel of NWFFD, North Ballroom.

THURSDAY, MARCH 6

8 to 10 a.m.—Meeting of the board of directors, Room 9. 9:45 to noon—A forecast symposium: Motion picture on new development: "New Stars in the Frozen Food Sky"; panel discussion of successes in prepared foods, poultry, etc.

LEDERLE LABORATORIES

THE BAYER COMPANY

E. R. SQUIBB & SONS

ABOTT LABORATORIES

PARKE, DAVIS & CO.

GOOD REMEDY for business ailments



Remember this when you go out to sell Worthington air conditioning and refrigeration: America's leaders... in many businesses... select Worthington.

For example, many big pharmaceutical houses use Worthington air conditioning and refrigeration to control chemical reactions, inhibit bacteria, prevent deterioration.

And many a corner drug store keeps up "hot weather" business by using Worthington air conditioning to "invite" more customers.

Take advantage of the completeness of the Worthington line. A Worthington distributor can handle any job with exactly the right equipment because the Worthington line is the broadest.

Worthington also advertises consistently in TIME, NEWSWEEK, BUSINESS WEEK and many other magazines read by architects, builders, contractors, food packers, frozen food producers, and by key men throughout such industries as chemical and petroleum, etc.

Worthington Pump and Machinery Corporation, Air Conditioning and Refrigeration Division, Harrison, New Jersey.

WORTHINGTON



AIR CONDITIONING AND REFRIGERATION

A Balanced Line... A Balanced Franchise

KEEP REFRIGERANTS

dry and clean

WITH

MUELLER BRASS CO. DELUXE DRIERS

Extra-capacity cone-screen filter unequalled for efficiency in the refrigeration industry.

FORGED BRASS ENDS

Heavy duty type with hasty wrench flats.

INLET CONTAINER SCREEN

Positive desiccant retainer without pressure drop.

OUTLET RETAINER SCREEN

By itself, equal to the filter elements in most ordinary driers.

LOCKED-IN CONE OUTLET SCREEN

Extra capacity free flow strainer surface.

WHITE WOOL DISC

Doubles filtering capacity.

FILTER BED

Chemically cleaned wool mass traps fine metallic grit or other foreign particles.

The millions of Mueller Brass Co. Deluxe Driers that are now in service provide the kind of proof you want—proof that no other drier can approach for all-around efficiency on-the-job, and for good reason. The Mueller Brass Co. Deluxe Drier is a typical example of the dependability and quality that Mueller laboratory and development engineers have made available in so much refrigeration equipment. The famous cone screen filter greatly increases the Deluxe Driers' working life. The filter strainer unit of the Deluxe Drier removes every minute particle of foreign matter from the line—keeping the refrigerant completely clean as well as dry.

Order now from your refrigeration wholesaler.

MADE IN U.S.A.

Write for catalog R-151 describing complete line of STREAMLINE refrigeration products.

STREAMLINE

refrigeration products are individual and multiple packaged for complete protection.

VOUGHT COPPER FITTINGS

VALVES

LIQUID INDICATORS

MUELLER BRASS CO. PORT HURON 10, MICHIGAN



NARDA Members Hear How 7 Dealers Pull Appliance Sales Out of the Hat

CHICAGO—Here are some sales promotion ideas that have been used successfully by appliance dealers.

They were brought out in discussions at the recent annual convention of the National Appliance & Radio Dealers Association.

A spell of foul weather is the cue for Wallace Johnston, Memphis, Tenn., to do some special direct-mail promoting of automatic driers. He has a stock of five series of "jumbo" postcards he sends out at such times. Of different colors, the cards are mailed to all customers who have purchased automatic washers in the last two years.

Nickel's Worth of Courtesy Pays Dividend In Dollars

Six days a week, Harold Frankel, Huntington, W. Va., supplies a boy with 10 nickels and company business cards of the same size and stock as traffic violation tickets. The boy is then sent out to look for cars overparked in metered zones.

When the youth comes across such cars and they haven't been ticketed by police, he drops a nickel in the meter and puts a business card on the auto. Upon returning to his car, the driver sees the tag and thinks he has been ticketed for overparking.

Naturally, the motorist is pleased to discover that the appliance dealer has saved him from having to pay a fine. It's an inexpensive promotion and a good one, according to Frankel.

Frankel, who believes that promotion is the "life blood" of appliance retailing, tries to outshine competitors in these other ways:

He employs a home service director who gets a copy of all reports on sales of major appliances (not including television). She makes an appointment by phone with each customer and then goes to the home to fully explain operation and use of the product purchased.

About a week later, she again calls the customer to see if the appliance is performing properly. Full reports on all these calls are filed by the home service director.

In addition to building customer goodwill, these home calls may lead to direct sales, too. For example, the home service director recently reported that one customer seemed to be a prospect for a drier. As a result of the report, a salesman sold not only a drier but an automatic washer.

After the home service director was hired, she was given a one-month training course on appliances before taking up her duties. Frankel pays her \$90 a week and considers this an excellent investment. She is increasing volume greatly, he reported.

Frankel also puts great stress on advertising. One of the main points here, he said, is for dealers to ar-

range their ads so they are unusual and "a little bit different than the other fellow's."

The Huntington dealer displayed an ad that was a "bit different" and that sold 92 TV sets in two days. Showing a salesman dozing in a chair, the ad was headed: "Sh-h-h! Do not disturb salesman. Our television sets sell themselves!"

To supplement his own ideas on advertising, Frankel subscribes to a research service which supplies clippings of appliance and television ads twice a month.

Another Frankel policy is to run newspaper advertising on Mondays and Wednesdays so the ads will "dominate the paper." Most appliance advertising is published on other days, of course.

Frankel also pushes service a great deal, featuring the slogan, "What we sell we service." The firm, he said, has "built a wide reputation for service."

\$100 Bonus Offer Helps Keep Top Salesmen on Top

Harry B. Price, Jr. of Norfolk, Va., has stimulated his salesmen to extra activity in this scheme:

On an early day of the month, the sales manager walks into a sales meeting and hands a sum of money (it might be \$100 or \$150 or any figure decided upon) to whoever is top salesman at the moment. The lucky fellow is told he can keep the money as long as he stays on top. If he loses first place later in the month, he is permitted to keep \$10 of the sum plus \$2 a day for every day he has been top man. The plan works well for a limited time, according to Price.

Here's another idea he uses (borrowed from Wallace Johnston of Memphis) for a week or two-week drive on a particular product. Wooden eggs are purchased and one given to each salesman, the remainder going into a "nest" on the sales manager's desk.

Every salesman must carry his egg on his person at all times during business hours until he has made a sale of the product being pushed. When such a sale is made, his egg goes into the nest.

A salesman can be asked to show his egg at any time. If he's caught without it before making his sale, he has to pay a 50-cent fine which is put in the office "coke" fund.

This "gimmick" provides a lot of fun for the salesmen and helps keep up interest in the drive, Price has found.

Hard Work, Time Needed To Build Sales Force

The discussion of sales promotion brought from a dealer the comment that he was having difficulty finding

good salesmen. One retailer suggested the use of a utility training program, another cited the successful employment of women for selling, and a third said he had made salesmen even out of customers who became sold on the merchandise or the store. Still another mentioned Kelvinator's Vocation-In-Sales program.

Price offered this observation: "Don't be discouraged. You can't build a sales force in one or two years. It takes a long time to develop a strong, stable force. And it just takes hard work."

Cooperative Ad Program Is Profit-Maker for All

Francis L. Monette of Lowell, Mass., told of a 12-week cooperative advertising program conducted last fall by five NARDA dealers, three department stores, and a utility, in cooperation with five Boston distributors. The campaign covered ranges, washers and driers, water heaters, and traffic appliances.

Monette presented sales figures indicating that the promotion was a successful one. In answer to a question, he said the advertising was billed at the local, rather than the national rate, as the result of discussions with the newspaper.

Traffic Appliances Lead To Major Appliance Sales

Paul Dettling of Jackson, Mich., believes that small appliances can be big business for the dealer. He says they increase store traffic, lead to major appliance sales, and help the dealer operate profitably.

Dettling keeps the small and large

appliances segregated, makes sure that small appliances displayed in the window have price tags on them, provides a gift wrapping service during holidays, and offers traffic appliances at dollar-down, dollar-a-week terms. Such terms enable him to compete with jewelry stores.

Persistent Advertising Gets Consistent Results

Just what does the term "sales promotion" mean, anyway?

Arthur Brandt of St. Louis defines it this way: "Sales promotion is a thoughtful, persistent, enthusiastic selling effort based, as much as possible, on a statistical background."

Enthusiasm is important, he said, because you've got to "feel good" to be a good sales promotion man. So, he advised, make every effort to start each day right so you'll feel good the rest of the day.

Persistence is important because a prospect may not read your ad today but he will tomorrow. Thus, one-shot advertising splurges are a waste of time and money.

Statistics are important not only as a means of knowing what has happened sales-wise but what is likely to happen. For example, if you know by Tuesday morning just how much business was done on Monday, you can tell within a close percentage how much business you're going to do the rest of the week. Brandt has found, because buying habits haven't changed in the last 20 years.

Brandt has been keeping statistics on washers since 1932, and analyzes consumer interest as well as sales. His figures tell him what product the customer asked for (either in the store or by phone), who waited

on the customer, what the customer was sold, and the cost and selling price of the merchandise.

Ads and figures on each promotion are analyzed to determine how successful the promotion was and how good a job each salesman did.

Brandt constructs his ads on a "bargain" basis. Results indicate, he said, that they appeal to a cross-section of consumers. It's important, he feels, to give ad readers a reason for coming to your particular store.

Hoover Increases Prices of Vacuum Cleaners, Accessories

NORTH CANTON, Ohio—Prices of vacuum cleaners made by the Hoover Co. here have been increased effective Feb. 18, following approval of the Office of Price Stabilization.

In the upright line, increases are as follows: Model 62, from \$99.95 to \$104.95; Model 29, from \$87.95 to \$89.95; Model 115, from \$59.95 to \$62.95.

In the tank-type line, changes are: Model 51, from \$84.95 to \$88.95; Model 41, from \$69.95 to \$71.95.

Cleaning tools for Models 62 and 29 will be priced at \$20.95 and for Model 115 at \$12.95.

Albrecht New Sales Mgr. Of Dallas Distributorship

DALLAS—Capitol Distributors, Inc., local distributor of the Admiral line of television receivers and appliances, has announced the appointment of Flint Albrecht as sales manager.

Albrecht was formerly sales promotion manager for the southwest region of Crosley Div.

New revolutionary MITCHELL Weath'r-Dial zooms room air conditioner sales a mile!

Your profits travel up-up-up with the Industry's most important features Exclusive with MITCHELL

Weath'r-Dial The amazing new Weath'r-Dial is an engineering miracle that has made MITCHELL the only revolutionary, new product in air conditioning on the market today!

The Weath'r-Dial is a single control knob that automatically adjusts to five individual levels of cooling, dehumidifying, ventilation and exhaust.

only MITCHELL has the Arid-Dryer for extra dehumidification control.

only MITCHELL has the Four-Direction-Air Grills allowing air delivery tailored to every installation.

only MITCHELL has the Air-Scoop Exhaust that changes your MITCHELL room air conditioner into a super-powered exhaust fan.

only MITCHELL is so easily installed... operates as quietly and has such an enviable record of trouble free service.

Super Sales with MITCHELL

regular sales with ordinary models

MITCHELL MFG. CO., DEPT. A-C-4
2525 Clybourn Ave., Chicago 14, Ill.

Gentlemen:
Yes, I am interested in a MITCHELL Room Air Conditioning Dealer Franchise. Rush me complete details today.

Name _____
Address _____
City _____ State _____

YOU CAN'T BEAT THE VICTOR Refrigerated Rooms For Every Purpose

- Normal Temperature Rooms
- Zero, Low Temperature Rooms
- Tailor-made Rooms for any required temperature, at any desired size.

For information write: **VICTOR**
MANUFACTURERS OF THE FAMOUS VICTOR QUICKFREEZE
PRODUCTS CORPORATION • HAGERSTOWN, MD.

MITCHELL "THE WORLD'S FINEST ROOM AIR CONDITIONER" SEVEN MODELS TO CHOOSE FROM—FOUR DIFFERENT CAPACITIES
MAIL THIS COUPON TODAY FOR FULL DETAILS

INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)
"How is he now?"

Ten weeks behind on the aspirin and two years ahead on the rye."

True Convention Stories

So many so-called "new" tales are reverse twists and switches on timeless old laughs that it's difficult for a story-teller to choose and select "sure fire" anecdotes. Let's consider these two stories, which have convulsed many presumably sophisticated groups. Maybe it's because they're said to be true.

An inveterate convention-attender took his lovely wife to an annual meeting at Atlantic City. His wife was a luscious gal who had all those "stuff and things" which stir up wolf calls. They checked in at an approved hotel, and went for a stroll on the famous Boardwalk. And whom did they encounter on that stroll but a Pal of this inveterate conventioneer? Good Pal was squiring another beautiful dame.

"Pretend you don't see him, Sweetheart!" commanded the Husband-Who-Had-Brought-his-wife. "I'm sure he'll be ashamed of himself in the morning."

Morning came on schedule, and both couples were seated to their mutual embarrassment—at a four-place breakfast table.

Turned out that both conventioners had brought their honest-to-goodness wives to Atlantic City!

Bored by the Proceedings of the convention, a New Yorker and a Chicagoan conceived an undying love for each other at the official hotel's bar. In fact, they became sentimentally maudlin. Next year, they resolved—after many a bottoms up—they'd bring their wives to the annual convention, and then they'd all get together for a Big Time.

True to their bibulous pledge, they took their wives to the next meeting of their society, and both couples conjoined around the festive board. The Chicagoan's wife was a gorgeous, tempting dish. The New Yorker's, in horrid contrast, was cold, repellent, and uncooperative. Quickly she made it known that she was there "under protest" and that she disapproved of everything and everybody.

Next year, the New Yorker brought his wife to the Annual Get-together, but the husband of the luscious Chicago gal didn't.

"I say, old fellow," nodded the Easterner to the Chicagoan, when they bumped shoulders at adjoining stools in the approved hotel bar.

"Why didn't you bring your handsome and friendly wife?"

"Couldn't afford it. Er... why did you bring your old bag... er, I mean... wife?"

"Well, it was easier to bring her than to kiss her good-bye," confessed the New Yorker.

You Might Be Surprised

Mr. Tiddle and Mrs. Tiddle—friendly neighbors—decided to sit out a dance at the regular week-end Country Club shindig. They wandered about outdoors, and...

Taking advantage of the romantic, moonlit spring evening, and giving in to his natural impulses, Mr. Tiddle kissed Mrs. Tiddle.

Mrs. Tiddle's response to his embrace was unexpectedly electric.

"Gosh, Mabel," shivered neighbor Tiddle, "what would your husband say?"

"Heh, Heh. The old boy would be surprised," giggled Mabel. "He doesn't know I can neck like this."

Alibi

Beautiful Dolores and her husband "took in" all of the Sights of New York on their honeymoon—including the Statue of Liberty, Grant's tomb, and Radio City. In due time they toured the Metropolitan Museum of Art—where they came upon an oil portrait of a delectably-curved nude girl. The bored husband brightened up at once.

Upon closer inspection they both discovered—to their mutual discomfiture—that it was an exact replica of Dolores, the supposedly blushing bride.

"Sweetheart!" gasped her new husband. "I didn't know you ever posed like THAT!"

"Darling, I never did," gritted

Dolores. "That So-and-So must have painted me strictly from memory!"

Too True

Dorothien collapsed into her dearest friend's arms.

"Sally," she sobbed, "he's left me for that Woman."

"Don't worry, Dear," Sally comforted. "You'll feel better after you've had a good laugh."

Write Your Own Punch Line

In Paris three *couturiers* were arguing about the facts of feminine pulchritude.

"A woman's finest feature is her eyes," insisted Dior Dion.

"I disagree," interrupted Marcel Maque. "It's a translucent complexion."

"Oh, no," protested Francois, "pearly teeth attract men most."

"Come, come, fellow," Jacques Fath concluded, "let's not kid ourselves."

He Isn't Tongue-Tied Now

At the time of his marriage John Bugas, who is now Ford's Director of Industrial Relations, was a prominent FBI man.

His honeymoon was interrupted by an urgent call from Washington. FBI Chief J. Edgar Hoover was unable to make a scheduled speech in Toronto, and would Bugas please substitute?

John did, and checked in at a Toronto hotel with his bride. Reporters arrived promptly for an interview with this representative of law, order, and moral rectitude in the United States. And for once in his life Bugas was frustrated.

"Gentlemen," he gestured toward his bride, "uh, may I introduce Miss McCarthy?"

Bureaucratic Dilemma

"According to the law," warned a U. S. bureaucrat, "you can't have four wives."

"Ugh," grunted Chief Funking Bull.

"What I mean is, you'd better pick out one wife and send the other three packing."

"Ugh, good deal. I take young squaw. You take other three and tell 'em why. OK?"

Modern American Folklore

Passionately the male screen star begged a voluptuous starlet to marry him.

"I love you, I need you. I want to have you as the mother of my children."

"How many do you have now?" she wisecracked.

Smart Operator

Accompanied by a luscious gal a middle-aged man entered a fur emporium on a Friday afternoon.

"Show us your best mink coats and ermine stoles," he commanded, waving a gold-tipped cane. Quickly models paraded expensive fur garments. His companion chose two of each.

"Ahhh, fine, fine. I'll buy 'em. Put her initials (H. R. A.) into the linings, wrap 'em up, and deliver them to my suite at the Ritz hotel. How much do I owe you altogether? Twenty-eight thousand dollars? OK. Here's my check. You can clear it over the week-end."

Tuesday morning the Big Shot voluntarily walked into the fur salon.

"Your check bounced!" the Credit Manager angrily accosted him.

"Naturally," placated the Big Shot. "Knew it would. And I thank you people for a wonderful week-end."

Take It Easy, Gals

Toastmasters who specialize in long-drawn-out dialect yarns seem to be most successful when they hang their repertoire on the nose of a trade-marked character. To wit: Lou Holtz has his Lardies... Joe E. Lewis has his Sam... George Jessel has Mrs. Mcfoofsky... and each of the above has always wowed audiences with variations on the same theme—which we'll try to pass on in our own poor fashion.

(1) Sam loved borscht, his business, his children, his wife... in that order. But his passion for borscht was insatiable. His other loves he could take or leave.

Sam was lapping up borscht at Lindy's when his oldest son rushed in and lamented: "Poppa, Momma just died!"

Sam neither looked up nor stopped slurping his beloved foodstuff.

"Poppa, didn't you hear me? Momma is dead!"

Sam slurped some more, wiped off his chin and finally spoke.

"My boy, as soon as I've finished my third order of borscht, you'll hear some wailing you'll long remember."

(2) And then there was the cartoon with similar implications which appeared in an advertising trade publication. After listening to a recital of woe over the telephone an advertising executive consoled:

"Why that's awful. Er... would you ask the widow if our layouts and art-work were damaged?"

(3) J. Terwilliger Stackpole died under peculiar circumstances, and the life insurance company stalled before paying his widow the \$10,000 benefit from his policy.

Exasperatedly, Mrs. Terwilliger penned the following note to the insurance firm's headquarters:

"I've had so much trouble with you people that lately I've begun to wish Terwilliger hadn't died."

Right? Right!

Three months after burying his first wife Peter Piper applied for a marriage license.

The town clerk, an old friend of Peter's family, didn't like the idea of his fast remarriage at all, and said so.

"Shame on you, Peter," he chided. "Only three months ago your first wife departed. And now you're wanting to marry again."

"Why not?" beamed Mr. Piper. "You know me well enough to realize I don't hold a grudge very long."

Daffy Definitions

Successful man—One who earns more than his wife can spend.

Successful woman—One who finds such a man.

Golden Astrology

Gypsie Goldie (a bleached brunette) captured the heart and name of wealthy Sadder Budweiser. Three months after she had made this "coup," Goldie promptly shed her husband via the divorce court, and nailed down a stupendous amount of alimony.

"That ex-wife of yours is really a smart cookie," his lawyer remarked. "Very lucky at cards, too, I hear."

"You're so right," hastily agreed Sadder. "She started out by telling my fortune and ended up by counting it!"

Second Honeymoon

Max and Mary Mills were an oddity in the marriage lottery. They were ideally mated. Each year they loved each other more and more. Their 25th anniversary neared, and Max

thought up a sweetly sentimental way of celebrating it. He'd take his wife to Niagara Falls, he decided, and re-enact their honeymoon all over again—doing everything they'd done 25 years ago.

With pardonable pride he told all the "boys" in his office about this plan, and they agreed that it was a wonderful idea. So Max and Mary had their second honeymoon at Niagara Falls.

"How'd it come off, Max?" his fellow-conspirators greeted him upon his return to the office. "Everything just like before?"

"Well, almost," Max admitted, a bit sadly. "Just a small difference. This time I was the one who cried."

Now!

"Stories of the Week"

In Handy Form

In response to hundreds of requests from AIR CONDITIONING & REFRIGERATION NEWS subscribers, the conductor of its "Inside Dope" column has collected and grouped his best "Stories of the Week." They are now available in convenient book-form for your reading and working pleasure. The book is entitled: "You'll Love This One."

Everyone will enjoy reading this book, we hope, but for the salesman—and for anyone who may be called upon to "say a few words" at a meeting—it should have special appeal.

Here's why: this book of good stories you can tell is printed on thin paper, bound in flexible leatherette, and designed to fit neatly into your inside coat pocket.

While waiting in an ante-room to see Mr. Bigdome, the sales representative can thumb through it and pick out four or five pertinent jokes which are guaranteed to put his prospect in a good mood.

The man about to make a speech—or one who figures he may be asked to rise and shine extemporaneously—can consult it surreptitiously while the toastmaster is doing his stuff. Although it's jam-packed with grand tales, it isn't bulky. Rather, it's unobtrusive. Looks more like a leather wallet than a book.

You can be the life of the party if you've memorized some of the anecdotes in this book. Everybody loves a good story well told—and all the jokes in this book have been tested on tough audiences, both large and intimate, by the author.

Within its 236 thin-paper pages more than 200 sure-fire laughs are presented. You can use it profitably, and so can your friends. It's handsomely turned out, and will make an appreciated gift anytime.

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Write Box 3920

Air Conditioning & Refrigeration News



LINE-UP of Weber's new "Blizzard" frozen food cases which feature an automatic water defrosting system. Compressor is off only nine minutes during the defrosting operation. This assures minimum rise in temperature of foods stored in the cases.

Takes Only Nine Minutes

Weber Cases Have Automatic Water Defrost

LOS ANGELES—The new "Blizzard" frozen food and ice cream case, recently introduced by Weber Showcase & Fixture Co., Inc., features an exclusive automatic water defrosting system which is claimed to be the fastest defrost system now known.

The compressor is off for just nine minutes, while frost is "washed off" the refrigeration coils with cold water. No heat is injected into the case. Defrosting is so fast that there is no appreciable rise in product temperature, the company states.

The "Blizzard" uses forced air refrigeration, which eliminates divider plate coils. This saves all the reachable space in the cabinet for merchandise, increasing the capacity and giving complete flexibility in the arrangement of ice cream and frozen foods.

Other features of the case are: the wide-open 21-in. reach-in top; "view-window" front; endless construction with no ends or dividers between cases; lighted 3-deck "selling superstructure" for non-refrigerated items.

Buckeye RSES To Meet In Cleveland April 4-6

CLEVELAND—Plans are being completed for the sixth annual convention of the Buckeye State Association, Refrigeration Service Engineers Society, to be held April 4-6 at the Allerton hotel here, the association announced.

The educational part of the program will feature several speakers recognized as authorities on their subjects, it was reported.

Tours of interest to those in the refrigeration industry are being arranged for persons arriving by noon Friday, April 4.

The entertainment program will be highlighted by the annual banquet and floor show Saturday night, April 5.

The Cleveland Chapter Auxiliary has prepared an entertainment program for all the ladies attending.

Hotel reservations should be made in advance by writing direct to Hotel Allerton, Reservation Dept., East 13th St. & Chester Ave., Cleveland 14, and making reference to attending the convention.

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Salomon Resigns Post at Kelvinator After 15 Years

DETROIT—Kelvinator's beverage cooler sales manager, A. U. Salomon, recently announced his resignation after 15 years with the company.

Salomon joined Kelvinator's commercial division in 1933, and first served as beverage cooler sales manager from 1938 to 1941. After operating a bottling plant in Norfolk, Va. for four years, he rejoined Kelvinator in 1945 in his previous position.

A native of Richmond, Va. and a graduate of the University of Pittsburgh, Salomon has spent 22 years in the manufacture and sale of commercial equipment for bottlers. His plans for the immediate future were not announced.

Law To License Repair Firms Sought In Rhode Island

PROVIDENCE, R. I.—A bill proposing state supervision of businesses repairing or selling contracts to repair radio, television, and other household appliances was introduced in the Rhode Island legislature by Representatives Harold A. Duxbury and Alfred P. Perrotti, both Democrats.

The proposed legislation would require such businesses to get a \$2 license from the State Department of Business Regulation and to post a \$2,000 bond with the general treasurer as a token of good faith. Violators of the act would be subject to fines up to \$500.

Martin To Sell RCA Coolers In Southwestern Region

CAMDEN, N. J.—Templeton W. Martin, who has been active in RCA Victor sales and promotion work for the past 10 years, has been named field sales representative for RCA air conditioners in the southwest region. W. F. Carolan, general sales manager of the company's air conditioner department, announced recently, Martin will have his headquarters in Dallas.

Samuelson Joins York

YORK, Pa.—Roger L. Samuelson has been named order administrator for York Corp.'s southwest district with headquarters in Houston, Texas, according to John R. Hertzler, vice president and general sales manager. He succeeds George Hauger, who recently resigned.

Independent Grocers May Spend \$800 Million for Modernization In 1952

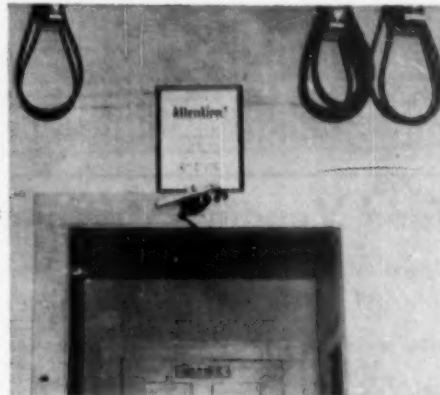
CHICAGO—Independent grocers of all sizes plan to spend approximately \$800 million this year in the greatest program of store modernization and expansion in their history, with refrigeration and air conditioning high on the list of equipment to be purchased, a study shows.

Announcement of the results of the latest study of modernization plans among 63,000 members of the National Association of Retail Grocers appears in the February issue of *National Grocers Bulletin*, official publication of NARGUS.

Out of each 100 retailers participating in the study, 63 said they intend to purchase new store equipment to improve store appearance and efficiency. Shelving, refrigeration, checkout, and lighting equipment head the list of equipment purchases. Other items high on the list are new store fronts for 25% of the grocers and air conditioning for 18%.

Despite building problems, seven out of each 100 grocers indicated they are planning to build a new store in 1952, and 28% will remodel.

"Keeping up-to-date is an important aim of independent grocers," Mrs. R. M. Kiefer, secretary-manager of NARGUS and editor of the *Bulletin*, said. "From the results of this study we can expect a considerable increase in the numbers of and the sales volume of independent supers and 'superettes.' We also can expect a sizable increase in sales of frozen and refrigerated pre-packaged foods."



Giveaway Helps Get Attendance

To encourage attendance at meetings of the Refrigeration Service Engineers Society group in Waco, Texas, the N. O. Nelson Co., refrigeration supplies wholesaler, puts up a sign over a doorway and hangs under the sign some tool or instrument which will be given away at the meeting.

Kaufmann-Washington Takes on Fedders Line

WASHINGTON, D. C.—Appointment of Kaufmann-Washington Co. here as exclusive distributor for Fedders air conditioners in the District of Columbia, Maryland, and northern Virginia was announced recently by C. S. Klineberg, general manager of the firm.

The Kaufmann-Washington company, recently showed the new Fedders line to dealers.

Talk on Selling as Tool Planned by Detroit ASRE

DETROIT—"Value of Effective Selling as an Engineering Tool" will be outlined for the Detroit ASRE section at the March 3 meeting at the Rackham Memorial Bldg. by H. N. Farrand, vice president of Farrand-Nadell, Inc., advertising agency.

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SPORLAN FIRST with welded thermostatic element with stainless steel diaphragm...1934...Prime contribution to Peak Performance of Sporlan thermostatic expansion valves throughout the years.

Easy accessibility of parts has always been a feature of all Sporlan Valves. It means easy take-a-part for inspection and cleaning.

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Commercial Refrigeration

Food Vending Machines

Coin-Operated, Refrigerated Dispensers Supplement Manual Facilities In Factory Cafeterias

NEW YORK CITY—Successful and increasing use of his company's coin-operated vending machines to supplement factory cafeteria facilities has taken the automatic food merchandising idea well beyond the experimental stage, according to Robert Z. Greene, president of Rowe Corp. here, which set up its first food vending route in New Jersey plants early in 1950.

In addition to cigarette and candy machines, the company manufactures and services vendors which dispense sandwiches, pastry, milk, and ice cream items. The latter equipment is intended to provide auxiliary in-plant service, not to replace manually-operated facilities, Greene stressed.

Among others, the food vendors have been put into plants of General Electric, RCA Victor, and Philco. They were also installed at the Frankford Arsenal, Railway Express Agency, and Crown Can Co. in Philadelphia.

Rowe milk dispensers are being used by industries in the Oakland-

Sacramento region, Cleveland, and Pittsburgh, and by dairies looking for new plant outlets through automatic merchandising. Milk plants employing the equipment recently included affiliates of National Dairy and Borden.

General Electric put eight batteries of the vendors in the seven buildings of its Philadelphia switchgear plant after finding the use of mobile lunch carts unsatisfactory.

The G-E department needed some means of supplementing over-the-counter facilities since the cafeteria can't begin to serve all the workers employed on a shift. With a 30-minute lunch period in effect, most of the employees are unable or unwilling to use the cafeteria, located on the sixth floor of one of the buildings.

Installation of the Rowe equipment solved the problem. Now, switchgear workers can get nutritious food (individually paper-packaged) and drink without going to the cafeteria, bringing their own lunch, or leaving the plant. And prices of the

food in the machines are comparable to those in the cafeteria.

The refrigerated sandwich machines provide five different sandwiches, with the "menu" being changed completely every day. Temperature in the vendors is maintained at 40°. Refrigerated trucks bring the sandwiches to the plant.

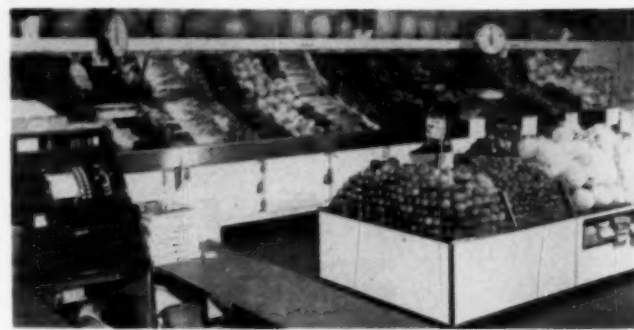
Five kinds of pies and pastry can be obtained from the pastry dispensers, half-pint cartons of milk, chocolate, or a dairy orangeade from the dual-flavor milk machines, and items such as stick bars, ice cream sandwiches, and creamies from the ice cream vendors.

The switchgear equipment is owned and stocked by Automatic Food Service Co., Philadelphia subsidiary of Rowe Corp. Thus, the plant has obtained self-supporting food facilities without any capital outlay.

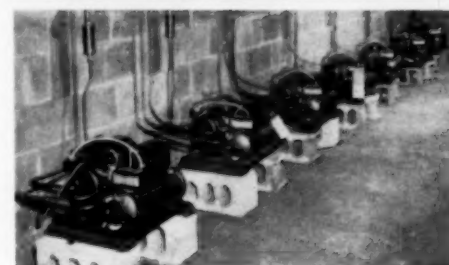
Administration of the various vendors in the G-E plant is handled by the plant management under its overall feeding program. Commission earnings of the machines go into the cafeteria fund.

W. F. Charboneau Buys Grahame Industrial Div.

UTICA, N. Y.—Francis Charboneau has acquired the industrial division of Grahame Sales and is established as the W. F. Charboneau Co. on Oriskany Blvd., Whitesboro. Ray Strife, who has been with Grahame Sales, will be the sales manager. The company will distribute C. V. Hill store fixtures, walk-in coolers, and other types of refrigeration cabinets, and York air conditioning, ice making equipment, and commercial refrigeration machines.



ABOVE: Row of open vegetable cases in Rainbow market in Hackensack, N. J., makes an attractive display.



LEFT: Seven Servel hermetic units lined up in basement cool the numerous refrigerated cases.

Display Cases, Sliding Glass Window Front Give Store Ultra-Modern Appearance

HACKENSACK, N. J.—Small but attractive as well as completely modern in appearance, the Rainbow market recently opened by Frank Stein on Main St. in the heart of Hackensack makes full use of refrigeration in its operation.

At a first glance, though, a passer-by might suppose the store was no more than an ultra-modern fruit stand. That's because the front of the store is open and features an attractive display of fruits and vegetables. Actually, this is made possible by a set of windows which slide up out of the way during the summer or other periods of mild weather. In winter, these windows are lowered.

Regardless of whether the front is open or not, the store also maintains an impressive display of fruits and vegetables in the three McCray double-duty refrigerated open vegetable cases which are lined up along the left side of the store.

On the opposite side of the store there is another full row of refrigerated cases. Nearest the front are

two open frozen food cases lined up with a double-deck dairy case. These are McCray cases likewise as are three of the four meat cases.

In an L-shaped layout covering the rear and right side of the store are three single-duty meat cases plus another display case for fish in which crushed ice is employed.

All the McCray cases are refrigerated by means of seven Servel water-cooled hermetic units remotely installed in the basement of the store. Lined up in a single row are four 1-hp. units and three 3/4-hp. machines.

Three other condensing units in the basement supply refrigeration for walk-in coolers located in the rear of the store. These include two coolers for produce and one large walk-in for meat. In addition, a large frozen food chest in the rear area is kept filled with stock to refill two open frozen food cases up front.

Sale of the refrigeration equipment for the Rainbow market was handled by Central Store Equipment Co. of Paterson, N. J.

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Taste-Master

Sell your condensing unit with Filtrine Stainless Steel or Duro finished cabinets, equipped to suit with top/side shelves, bubblers, glass-fillers. Can be Taste-Master equipped to remove chlorine, rust, sediment from water.

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Sell your condensing unit with Filtrine models repeatedly named by V.A., Signal Corps, Air Force, etc. for X-ray and photo-labs. Under counter design and floor-mounted models with stainless steel work-table top. Filters (extra) to prevent scratched and pin-holed negatives.

PACKAGED CIRCULATING CHILLED WATER SYSTEMS

Sell your condensing unit! Systems for drinking or processing water—completely packaged with pump, controls, your condensing unit factory installed. Capacities 5-400 g.p.h.; storage 5-150 gals. Filters and Rectifier-Dechlorinators (extra) to insure taste-free, sparkling water.

REMOTE COOLERS

Sell your condensing unit with remote models for new and replacement jobs—all applications. Capacities 10-1000 g.p.h.; storage 7-300 gals. Filters, Rectifier-Dechlorinators available for all sizes.



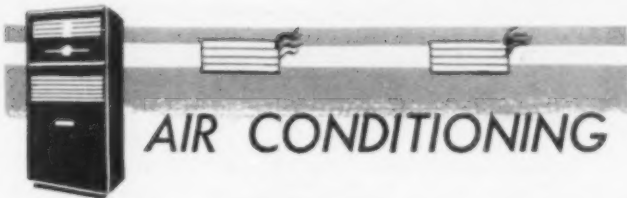
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"Water Coolers and Filters for 40 Years"



Texans were surprised last year when they discovered their state legislature had quietly passed a resolution prohibiting use of state funds for air conditioning state buildings, except new construction.

Some of them were aroused when the state's Attorney General later ruled that evaporative coolers were air conditioners and thus forbidden by the resolution.

Attempts are being made in Texas to (1) at least arrive at a more explicit and generally acceptable definition of "air conditioning," and (2) repeal, if possible, the ban on air conditioning.

What's been done so far, and some interesting views on this important topic, were recently presented before the Dallas-Ft. Worth section of the American Society of Refrigerating Engineers by F. B. Frazee, who has been active in the campaign to persuade the legislature to re-examine the problem.

Texans Seek End of Ban on New 'Conditioning' In State Bldgs.

By F. B. Frazee, Chief Engineer, Air Conditioning Department, Calcasieu Lumber Co., Austin, Texas

The House Journal of the Texas 52nd Legislature meeting in Austin indicates that March 18 of 1951 was a rather ordinary day. But sandwiched between Resolutions declaring Bobbie Jo Fleming, 4½, of Henderson a Mascot of the House and another granting H. W. Hutchinson and wife of Clebourne permission to sue the state, we find what to the members of this industry may be the most important act of this legislature.

House Concurrent Resolution #38 after the usual number of propositions, concludes, "therefore, be it Resolved . . . that the policy of the State of Texas is not to permit the use of State funds for air conditioning State buildings, except new construction, or for the purchase of room air conditioning machinery or units. . . ." This Resolution was subsequently amended (H.C.R. 187) to exempt "equipment for laboratory and scientific purposes."

RESOLUTION GETS LITTLE PUBLICITY

Extremely little publicity was given this resolution. The Texas Employment Commission which maintains its own purchasing department as one of the state agencies claimed that they had never received circulation of the order, nor has it been shown that any was attempted.

Three months later the Employment Commission purchased 10 evaporative coolers for delivery in Austin and shortly thereafter a number in Houston. Not until payment for the Austin units was requested by voucher was there any publicity given the resolution.

It was generally believed that even the question of payment was not made in good faith.

The State Board of Control serves most of the state agencies as the authorization agency as well as the procurement agency. It must have been a thorn in the side of many departments that while their needs were questioned, reduced, or refused by the Board of Control, the Employment Commission operated from funds of their own. Nor is it unlikely that the Board of Control resented what they considered to be usurpation of their function.

ATTORNEY GENERAL DEEMS EVAPORATIVE COOLERS AIR CONDITIONING

The State Board of Control requested an opinion from the State Attorney General covering the purchase of these evaporative coolers.

When the Attorney General's Opinion (V-1269) was published, it supported the pretentious State Board of Control, administering in effect a verbal slap on the wrist to the Texas Employment Commission.

Despite overwhelming evidence to the contrary, the opinion stated that evaporative coolers were air conditioners. The authority quoted is Webster's New International Dictionary, 2nd Edition, 1938.

This source of a definition proved fortunate. Webster's New World Dictionary of the American Language (World Publishing Co. 1951) defines air conditioning as "the process of cleaning the air and controlling its humidity and temperature in buildings, cars, etc."

WHAT ABOUT FANS? ASKS NEWSPAPER

An editorial in the Dallas Morning News of Oct. 19, 1951, compares evaporative coolers, ruled air conditioners, with electric fans which were ruled to be outside the scope of the resolution. "The blower uses the perspiration of the human body to lower the temperature surrounding the body, just as the evaporative cooler uses water piped from the tap to gain the same end," returning the argument to the ice age controversy of natural sources of moisture as opposed to artificial.

The editorial continues: "What the next session of the legislature should do is to repeal this unreasonable ban on air conditioning. Private industry has long since learned that air conditioning in climate such as ours is economy where large groups of workers are concerned. To deny this boon to stricken humanity is on a par with saying no heaters except sweaters and blankets may be used in winter time."

The problem is not one of interpretation alone. Owners of rental property who seek leases to state agencies are forced to provide air conditioning whereas in the past the equipment had been bought and maintained at a savings by the tenant bureau. A member of the state agencies since the passage of H.C.R. 38 have moved to air conditioned quarters. And in the contest for skilled professional and semi-professional services, the agency offering the better working conditions is certain to recruit and keep better employees. They in turn will do superior work under more ideal working conditions.

BAN CLASSIFIED WITH SOCIALIZED MEDICINE

The air conditioning contractors of Texas are representative of the business people and citizens of the state. They are anxious to see the state budget held to a minimum that the pressure of taxes be reduced. If it were possible to justify the House resolution on the basis of economy, it would receive the heartfelt support of these contractors.

However, it is accorded the same reception as Socialized Medicine and other forms of Statism. Agencies now seek air conditioning through new leases of air conditioned space. The lessor profiting on his building investment, makes a further profit on his equipment investment. To the taxpayers, the equipment cost is greater than before.

We might accord the state the same right to decide, as we willingly do the owner of private property, whether or not to invest in certain

equipment. The Legislature created no machinery for weighing the relative value of the operation of existing equipment and the Attorney General's sweeping opinion removed the possibility of its being done judiciously by existing agencies.

We have confined our discussion to cooling equipment as the opinion confined itself to that phase of air conditioning. A reported bidder on heating work being done in San Antonio, we are told, made the mistake of referring to the equipment on which he was bidding as a winter air conditioner. The bid was thrown out.

As defined by the American Society of Heating & Ventilating Engineers, air conditioning is the simultaneous control of all, or at least the first three, of those factors affecting both physical and chemical conditions within any structure. These factors include temperature, humidity, motion, distribution, bacteria, odors, and toxic gases, most of which affect in greater or lesser degree human health or comfort.

Certainly then we can claim that forced warm air heating is winter air conditioning and that our refrigerated systems offer summer air conditioning, as both fulfill the basic requirements. In combination, they offer unqualified air conditioning and no other equipment can make that claim.

The Southwest Texas Chapter of ASHVE has been working for some months on the preparation of a resolution or petition which would meet with the general acceptance of its membership. It is our hope that the Dallas-Ft. Worth Section, ASRE and North Texas Chapter of ASHVE will join with us in an effort to make air conditioning, winter and summer, a respected and specific designation.

Resolution Asks Change In Official Texas Ruling Which Defines 'Air Conditioning'

WHEREAS, The House of Representatives, the Senate of Texas concurring, Fifty-second Legislature of Texas passed The Resolution H.C.R. 38, that the policy of the state of Texas is not to permit the use of state funds for air conditioning State buildings; except new construction or for the purchase, of room air conditioning machinery or unit; and

WHEREAS, the Attorney General of Texas, in his opinion number V-1269, dated Aug. 31, 1951, he defines "air conditioning" as quoted from Webster's New International Dictionary (2nd Ed. 1938) as "a process of washing, humidifying, and dehumidifying air before it enters a room, hall, or building" and has further defined "an air conditioned office has been judicially described as one which is rendered reasonably comfortable during hot weather, to the extent usually experienced in 'air conditioned' hotels, offices, and other buildings;" and

WHEREAS, the term "Air Conditioning" as defined by the American Society of Heating and Ventilating Engineers and the American Society of Refrigeration Engineers as "The simultaneous control of all, or at least the first three, of those factors affecting both physical and chemical conditions of the atmosphere within any structure. These factors included temperature, humidity, motion, distribution, bacteria, odors,

and toxic gases, most of which affect in greater or lesser degree human health or comfort;" and

WHEREAS, there has developed in the United States and the State of Texas an industry producing equipment performing those functions conforming with the definition of the industry and others manufacturing forced warm air equipment and refrigerated air conditioners advertised and accepted as winter or summer air conditioners installed separately or in combination with each other, and

WHEREAS, no other combination of equipment or process produces the simultaneous control of temperature, humidity, and motion.

BE IT RESOLVED, that the Texas Chapters of the American Society of Heating and Ventilating Engineers, in session assembled do hereby request the Attorney General of Texas to reconsider his opinion of Aug. 31, 1951, opinion No. V-1269 and in rewriting an opinion, let it conform with the accepted definition of the term air conditioning, and

BE IT FURTHER RESOLVED, that the membership of this Society and others affiliated in the industries it represents encourage and exhort the next session of the Legislature to adopt the necessary legislation to make this definition law that future rules, regulations, and bills may be explicit.

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**EXCLUSIVE
SELLING
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Only Brunner Dealers, at their option, can offer this 5 Year Protection Policy on the Brunner "open type" compressors installed in all four models of Brunner Air Conditioners. This exclusive and absolute protection available to your customers removes every question as to "what's the best buy in air conditioning".

3 STYLES...4 SIZES

BAC Style "S"—Cooling section, blower section and plenum, front discharge and air return grilles.

BAC Style "D"—Cooling section, blower section with top duct connection, front air return grille.

BAC Style "R"—Cooling section, front air return grille. No fan section.

Hundreds of satisfied customers will vouch for the dependable operation of Brunner air conditioners in all sections of the country. The large number of units sold and the service satisfaction given their buyers is ample evidence that BRUNNER is a line with unusual customer acceptance. When you are known as the Brunner Dealer customers will be asking you about Brunner Air Conditioners.



DIRECT MAIL LITERATURE! Selling Aides to Help You Tell Your Customers—QUICK!

In addition to a forceful advertising program in leading magazines read in your area, Brunner offers their dealers sales-clinching literature for direct mailing. If you are in business to make money, write the factory today and ask for the 1952 Brunner Air Conditioner Selling Program.



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CONDITIONERS**

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VOLUME 65, No. 8, SERIAL NO. 1,197, FEBRUARY 25, 1952

"I have always felt that whatever the Divine Providence permitted to occur I was not too proud to report. The people are not served by pussyfooting, or by that sort of journalism in which nobody will ask who is the editor of a paper or the writer of an article, and nobody will care."—Charles A. Dana.

Heroes Are Made, Not Born

February is a distinguished month in American history, because it contains the birthdays of two Presidents who were truly great: Abe Lincoln and George Washington. Each succeeded in uniting a nation which was on the verge of collapse.

Once more, in February, 1952, our nation seems to be falling apart. Communist Russia threatens us from abroad. Internally we are faced with schisms, corruption, degeneracy, and sickening inflation through higher and higher taxes and prices.

Citizens are crying out for a leader—a new Lincoln or Washington. The Lord knows we need one. But, in our anxiety to "throw the rascals out," let us not put too much trust in the magic of an attractive man.

We, the People, still must bear the burden of personal responsibility. No President can have a chance to set us back on the right track unless the convictions of America's straight-thinking citizens are expressed unmistakably. Politicians reflect the attitudes of voters.

What made Lincoln and Washington great was steadfast adherence to the principles of our Constitution. Abe and George were bitterly attacked by little men who put selfish interests above those principles. These two Presidents won out because the good common sense of independent Americans was substantial enough, strong enough, and heard enough to backbone their devotion to safe, sane, and sound economic and political maxims.

In other words, an elected official can't become a Great Leader unless he is supported by mature men and women who believe in honesty, thrift, hard work, and personal responsibility.

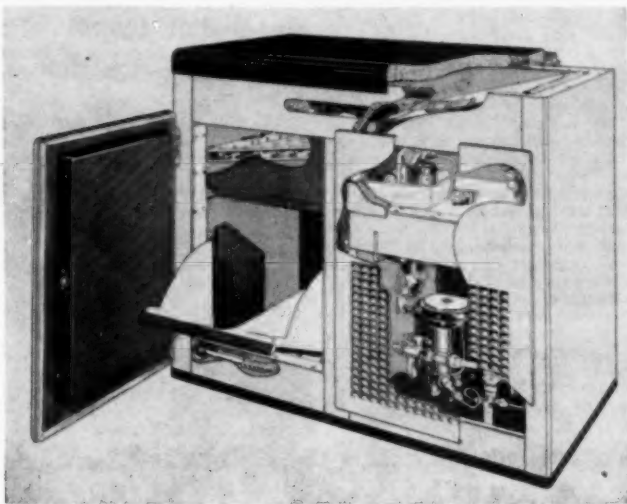
Government has become such an overwhelming factor in our lives, and in the hopes and prospects of our children, that what happens at the polls next November will outweigh by far anything we can initiate to help our own personal situations.

Whatever happens next November, we are due for a bump, though. The question is: will it be temporary or permanent?

Whoever is elected can't answer this question. We shall have to answer it for ourselves. It is up to us to decide whether we shall trade temporary advantage for permanent poverty, or suffer a short-term awakening in return for a revival of opportunity and justice for ourselves and our children.

We must decide between a little more today and a lot less tomorrow; between immoral selfishness and the future of the human race.

Nor can we beg the issue by trusting a photogenic or comforting "leader" to resolve our problems. He will be only as good as we allow him to be.



CHIEF COMPONENT parts of Frigidaire's new automatic ice cube maker are shown in this cutaway view. Tilted freezing plate is at top right.

Tilted Freezer Plate Is Key to Operation Of Frigidaire Automatic Ice Cube Maker

Service Engineers Get Operating Details on New Model

DETROIT—Constructional and operational details of Frigidaire's new automatic ice cube maker with its unusual method of freezing cubes were presented before Michigan RSES chapters recently by R. A. Wilkins of the service department at the Detroit branch of Frigidaire Sales Corp.

"Essentially," he said, "the new CMR-1 unit consists of a freezer plate tilted at a 15° angle. Water freezes on the plate to a predetermined thickness, at which time hot gas frees the ice slab which slides onto a grid of electrically heated wires. These melt the ice sheet into cubes which drop into a storage bin."

200 LBS. IN 24 HOURS

Explaining that the cabinet measures 38½ in. high, 44½ in. long, and 31½ in. deep, Wilkins said that under normal conditions it will produce 200 lbs. of ice per 24 hours.

In the right-hand side of the cabinet are located the ½-hp. Meter-Miser unit, freezing plate, water reservoir, and circulating pump, while on the left side is the ice-cutting grid above the storage bin. The latter holds a maximum of 100 lbs. of ice cubes and is fitted with a tilt-down inner door.

The cycle of operation was out-

lined by Wilkins as follows:

Water enters a reservoir or sump through a filter and metering device which regulates the flow of water to a maximum of 2 gals. per hour regardless of the incoming water pressure.

A motor-driven impeller circulates the water from the sump tank up to a distribution header located at the high end of the tilted freezer plate. The latter is made of tin-plated brass with a dual-pass arrangement to assure even distribution of refrigerant.

Some of the water flowing down over this plate is frozen, the rest returning to the sump tank where it is again recirculated. This action continues, Wilkins said, until the slab of ice on the freezer plate reaches a predetermined thickness.

"Because the water is flowing continually over the plate during the freezing cycle, the ice is crystal clear, all impurities being carried off by the moving water," he pointed out.

Thickness of the ice slab is determined by the distance of a thermostat above the freezing plate. When the ice slab builds up sufficiently to touch and thus cool the thermostat, the freezing cycle is stopped and the harvest cycle started by this thermostat.

"The freezing cycle requires from

40 to 60 minutes, but it only takes two minutes to free the slab of ice from the plate," Wilkins declared.

When the thermostat is cooled by the ice slab it simultaneously shuts off the circulating water impeller and opens a solenoid to pump hot discharge gas from the compressor through the freezing plate. The hot gas quickly frees the slab, measuring 16 by 18 in., which then slides by gravity onto the ice-cutting grid wires.

MINERALS SIPHONED OFF

As soon as the water pump stops, all the water that was in circulation quickly accumulates in the sump tank. This additional water raises the level in the tank above the inverted siphon tube which immediately siphons off all the water remaining in the tank through the drain. This is to remove all the minerals that might remain in the water or tank after each freezing cycle.

"Units on test have operated for several months in 'bad water' areas without any mineral accumulation in the sump tank," asserted Wilkins.

After the ice slab has slid off the freezer plate, the thermostat above it warms up immediately, closing the hot gas solenoid to resume the freezing cycle, and starting the water pump again.

The unit runs continuously under this arrangement, being stopped only when the insulated storage bin reaches its full capacity of 100 lbs. of cubes. At this point a thermostat switch in the bin cuts out the unit, cutting it in again when the ice cube level has been reduced.

Two sets of wires are employed in the ice-cutting grid, being mounted at an angle of 7° to receive the ice

slab from the freezing plates. These wires are heated electrically by an 11-volt circuit.

Top set of wires cuts the ice slab into strips which fall to the wires below set at right angles to those above. The lower set of wires melts the ice strips into cubes.

Because the freezing and harvesting cycles are continuous and automatically controlled, some provision had to be made, Wilkins said, to prevent a slab of ice being released from the freezing plate while the previous slab remains on the ice-cutting grid.

"Normally, of course, a slab would be cut into cubes well before the next slab were ready, but to avoid possible difficulty a micro-switch is mounted at the low end of the tilted grid. As long as the slab on the grid is pressing against this switch, heat is furnished by a 5-watt element to the thermostat above the freezing plate. This heat prevents the thermostat from starting the hot gas harvest cycle.

WORD OF CAUTION

"When the ice slab goes through the cutting grid, the micro-switch is released, cutting off the current to the heater at the thermostat."

One word of caution regarding the new ice cube maker was emphasized by Wilkins.

"Don't install it where the ambient temperature runs less than 60° F. This might interfere with the operation of the harvest cycle."

New Firm Opens in Okla.

MIAMI, Okla.—O. P. Marshall, Jr. has opened an air conditioning and refrigeration business here and will handle both sales and service.

SLANTS on Service

"Slants on Service" is a handy "package" devised by the NEWS to meet the needs of its busy readers in the service and contracting business.

How To Remove Oil from 'Hard-to-Drain' Compressor

If it is necessary to remove the oil from a "hard-to-drain" compressor, say in paralleling several condensing units, just remember your fundamentals, suggests Art de Desrochers of Wenatchee, Wash.

Simply pull a vacuum on an empty cylinder large enough to hold the oil. To this connect a ¼-in. tube and insert it through the oil fill plug of the compressor.

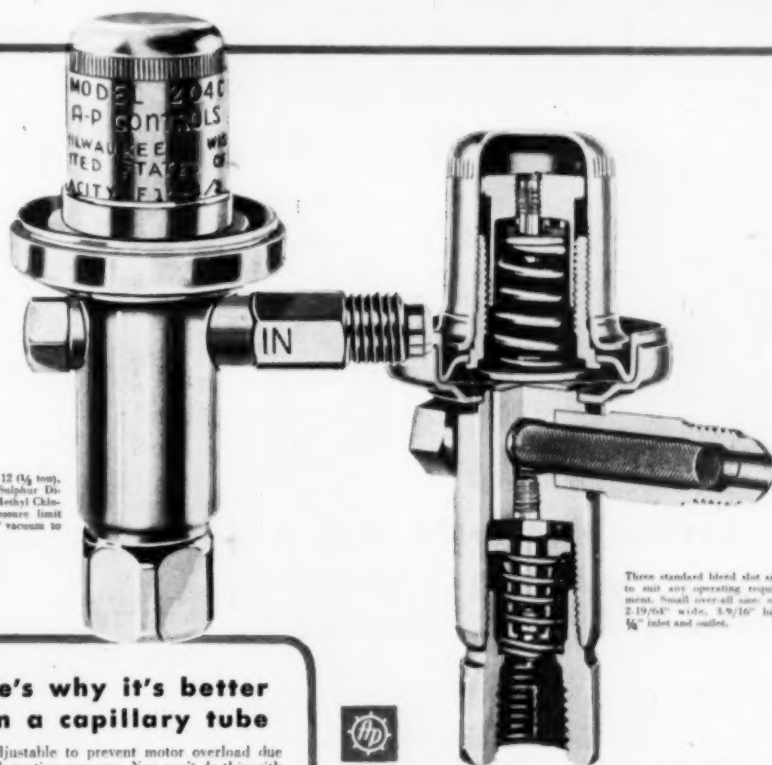
Opening the cylinder valve will suck out the oil uncontaminated.

To replace it after the compressor is "buttoned up," connect the cylinder to an upright refrigerant drum and put some gas pressure on the cylinder containing the oil. Then with the ¼-in. tube again inserted in the oil fill plug, invert the cylinder and open the valve.

Checking Beer Temperature

When the bartender complains that the draft beer is too warm, the serviceman should first check the temperature of the beer using a thermometer. Remember that it may be necessary to draw as many as six or seven glasses before a true reading will be obtained.

HERE'S AN IDEAL EXPANSION VALVE FOR HERMETICS!



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- 1 It's adjustable to prevent motor overload due to high suction pressure. You can't do this with a capillary!
- 2 The amount of refrigerant-system charge is not critical with this valve. It's extremely critical with a capillary!
- 3 Product cooling starts instantly on start of normal cycle. There's always a delay with a capillary.
- 4 Motor horsepower can be selected for maximum load under normal average ambient temperature. This means that a smaller motor can frequently be used. With a capillary, motor horsepower must be selected for extreme ambient temperatures!
- 5 This valve will open automatically to pass foreign matter which may collect at the orifice. In a capillary, foreign matter or moisture almost invariably ends in complete stoppage!



IT'S THE NEW MODEL 204CH BLEED-TYPE AUTOMATIC EXPANSION VALVE!

It's the ideal valve for use on fractional tonnage applications. It gives you small size, instant response, motor overload protection . . . PLUS "bleed-over" or compressor unloading on the off-cycle.

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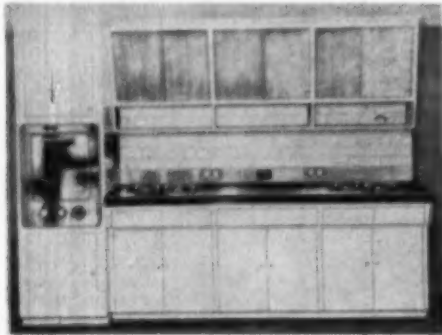


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What's New

When requesting further information on new products, please use "Information Center" form.

L & H Shows New 'Adapto' Model, 2 Conventional Ranges



LINDEMANN & HOVERSON 'Adapto' range has separate oven. Surface units are made in groups of two for flexible arrangement in workable surfaces.

KEY NO. B-240

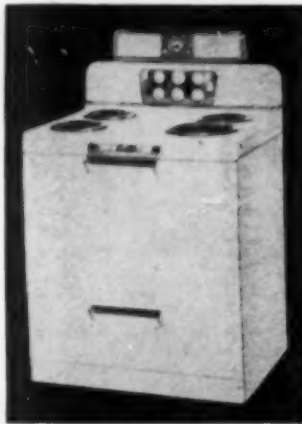
MILWAUKEE—A new "Adapto Range" with completely separate oven and surface units and new 30 and 40-in. conventional style ranges have been introduced by the A. J. Lindemann & Hoverson Co. here.

In the Adapto range, Model 5810, the oven is separate so that it could be built into a wall cabinet arrangement at shoulder height if desired.

The surface units come in pairs and can be set into work surfaces as desired.

The oven is equipped with automatic time control and electric clock, temperature control with automatic pre-heat, interval timer, appliance outlet, and oven light. The time control operates both the oven and appliance outlet.

Oven exterior is all stainless steel and interior is porcelain enameled



30-IN. MODEL 5830-D has four surface units mounted at edges with work space in center.

with rounded corners. Lower oven unit is hinged with removable stainless steel baffle. Smokeless broiler has porcelain enameled broiler pan and tray. Entire oven is heavily insulated with Fiberglas.

The top unit draws 3,000 watts and the lower 1,800 watts. Pre-heat draws 4,800 watts, bake 1,800 watts, and broil 3,000 watts. Maximum connected wattage is 6,490 watts.

Interior dimensions of the oven are 16 in. wide, 17 in. high, and 19½ in. deep.

The surface unit is equipped with two Monotube elements in a stainless steel top. One element is an 8-in. unit drawing 1,100 watts and the other is a 10-in. unit drawing 1,900 watts. Switches provide for seven heats.

Available in groups of two, the surface unit has over-all dimensions of 13½ in. wide, 22½ in. long, and 3½ in. deep.

The 30-in. range, Model 5830-D, has four surface units mounted at the outer edges and the controls set in the center of the backplaster. There is a full width oven and storage drawer at bottom.

This range has all the equipment of the Adapto range plus a surface unit signal light and a range lamp. In the oven, both the broiler and lower heating units are concealed. The entire range body is porcelain enameled.

The 30-in. range takes up a floor area of 30 by 25 in. The cooking top measures 30 by 22½ in. and is 36 in. off the floor. Total height, including backplaster is 49 in. The oven is 23 in. wide, 19½ in. deep, and 15 in. high. The service drawer measures 22½ in. wide, 19 in. deep, and 10 in. high.

The surface units consist of three 7-heat Monotube elements of 8-in. rim diameter rated at 1,100 watts, and one 10-in. unit rated at 1,900 watts. The large unit is on the right front.

The oven preheats at 5,400 watts, bakes at 2,400 watts, and broils at 3,000 watts. Maximum connected wattage is 11,400 watts.

Shipping weight of this range is 250 lbs.

The 40-in. range, Model 8941, has the same layout as the 30-in. with

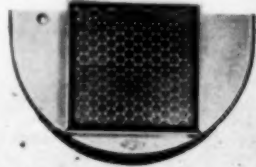
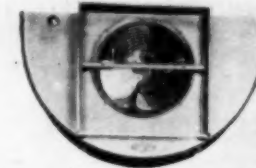
additional work space in the center. It has only three surface units, but has a "duo-cook" deep well cooker on the left front. Both the surface units and the duo-cook are controlled by vari-speed switches.

The duo-cook has a 10½-in. rim diameter and a rating of 1,100 watts. There are two 8-in. diameter units, one rated at 1,100 watts and the other at 1,500 watts. The 10-in. diameter unit is rated at 1,900 watts. Cooking height is 38 in. with the cooking top measuring 40 by 22½ in. Total height of the range, including backplaster is 47½ in.

Maximum connected wattage of the 40-in. range is 11,170 watts.

There are two storage drawers at the bottom measuring 15 in. wide, 7½ in. high, and 17 in. deep. Another storage drawer is at the same level as the oven.

Betz Develops Air Filter For Its Half-Round Unit



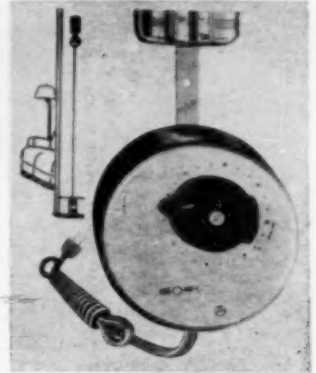
KEY NO. B-241

HAMMOND, Ind.—Betz Corp. here has recently developed an air filter for its half-round unit coolers.

The filter holding compartment clamps on to the fan guard. The filter slides in from the front of the unit, allowing easy access for cleaning or replacing in the field.

The filter is of the throw-away type and replacements may be secured in the field or purchased from Betz. The filter sections come complete with all necessary parts for installation and include the filter. Installation can be made in the field.

Heat-O-Matic Control Regulates Thermostat



KEY NO. B-242

ANN ARBOR, Mich.—The Automatic Controls Corp. here recently introduced the "Heat-O-Matic" day and night thermostat control for use with thermostats regulating domestic stoker-fed gas and oil heating systems.

The new product is described as a combination timer-heater powered by a Telechron fractional horsepower motor, operating from 110 volt a.c. 60 cycle wall outlets, through attached 6-ft. cord. All working units are enclosed in a urea-formaldehyde plastic case, finished in simulated satin-brass color.

No rewiring of thermostats, or major electrical alterations are necessary for the installation of this instrument on the standard thermostat of the average home, the company said.

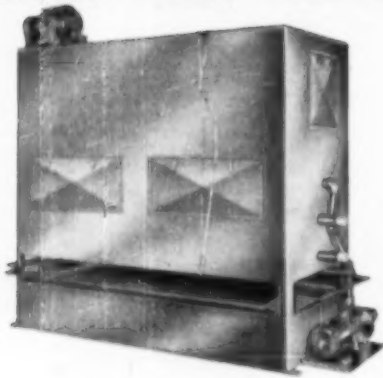
A one-screw attachment of the timer-heater unit to the thermostat and a "plug-in" of the 6-ft. cord lead into the nearest 110 volt outlet completes the installation.

Benefits of the Heat-O-Matic to the average homeowner are fuel cost savings between 10 and 12% annually, and low, comfortable room temperatures during sleeping hours, the manufacturer claims.

The Heat-O-Matic is set only once annually during the regular heating season. From that time until the heating system is shut off for the summer, home temperatures are regulated automatically.

The control sells for \$12.95.

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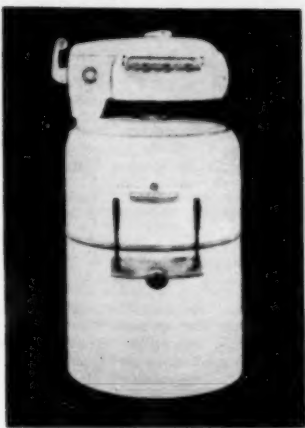
AIR CONDITIONING & REFRIGERATION NEWS

Reader Service Dept.,

450 W. FORT ST. DETROIT 26, MICHIGAN

What's New (Cont.)

G-E Unveils 3-Model Wringer Washer Line



KEY NO. B-243

LOUISVILLE, Ky.—Three new washers, to comprise the General Electric wringer washer line for 1952, have been announced by C. E. Anderson, manager of the home laundry equipment department.

The deluxe model, designated AW-472, can take a load of 10 lbs. of dry clothes and 19 gals. of water and has an "instinctive" wringer. Anderson said. When the wringer is in operation, a push or pull on it (or a tug on the clothes going through) will stop the rolls. The two and one quarter inch balloon rolls will also automatically adjust themselves to the thickness of the garment. For added protection, a pressure release bar is located just above the rolls.

Other features of the new model are a timer which automatically regulates the washing period up to 15 minutes, a hand-lift cover which can be hung on the side of the machine, and four 2½-in. "easy-rolling" black plastic casters, two of which can be locked to hold the washer firmly in position.

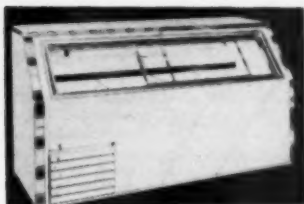
Also designed as a deluxe unit, but in the medium price field is the AW-372. This washer has a tub capacity of 8 lbs. of dry clothes and 17 gals. of water. Features of its construction

are one-control wringer, adjustable timer, and finger tip wash and drain control levers.

Designed for the popular price field is the AW-172. Like the other models, washing is by agitator action. The wringer is of the one-control type with self-adjusting rolls.

All of the washers, according to Anderson, have been re-styled for appearance besides incorporating design improvements for efficiency.

Recommended national retail prices on the new models are as follows: AW-472, \$199.95; AW-372, \$174; AW-172, \$158.



Howard Frozen Food Case Has Mother-of-Pearl Top

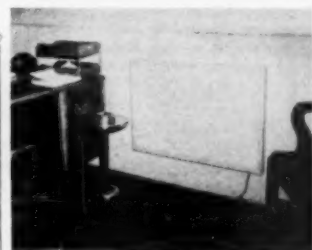
KEY NO. B-244

PHILADELPHIA—A frozen food display case with Mother-of-Pearl Formica top trimmed in ripple chrome to serve as a counter has been introduced by the Howard Refrigerator Co., Inc. here.

The Formica top may be adjusted to overhang on either front or back. Interior of the case has a fluorescent light with an individual switch. The upper section of the back wall is faced with a full-length polished angle-plated mirror.

Two sliding glass doors framed in chrome ride on a stainless steel track.

The case, equipped with a ½-hp. Tecumseh condensing unit, is finished in white baked enamel and measures 40 in. high, 29 in. wide, and 71 in. long. It is called the model CV-40.



No Hot Wires Used In Electric Panel Heater

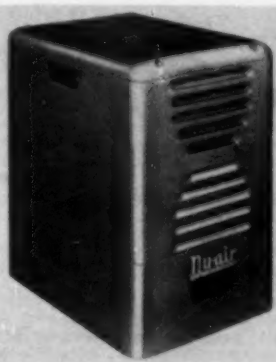
KEY NO. B-245

NORTH HOLLYWOOD, Calif.—A new electric panel heater employing an "entirely new" electric heat process that is claimed to eliminate burning hot wire elements has been introduced by Electrofilm Corp. here.

This "Hot-Rock" heater, according to the manufacturer, attains a uniform temperature of approximately 190° over the entire surface. It can be hung flush against a wall or suspended from the ceiling, and may be plugged into any 110-volt circuit, the company said.

Measuring 2 ft. by 3 ft., the heater is finished in grey with a natural wood frame. A 6-ft. plug-in cord is furnished.

Retail price of the heater is \$39.50. Dual voltage heaters using either 110 or 220 volts are available at a slightly higher cost.



Portable Dehumidifier Introduced by Meier

KEY NO. B-246

INDIANAPOLIS—A new dehumidifier that will remove up to 3 gals. of moisture from room air every 24 hours has been introduced by the Meier Electric and Machine Co., Inc. Called the "Nu-Air," the unit has a built-in tray that collects the water condensed from the air, or, if desired, a garden hose can be attached for disposal through any drain.

Equipped with ball-bearing casters, the Nu-Air dehumidifier can be easily moved to new locations as desired. It has a net weight of 55 lbs. and a shipping weight of 60 lbs.

The cabinet measures 18½ in. high, 15½ in. deep, and 12 in. wide. It is finished in baked enamel.

Refrigeration is provided by a hermetically sealed, ½-hp. compressor.

Sweden Offers 7 New Fountain Freezers for 1952



KEY NO. B-247

SEATTLE—Development of seven new models of fountain freezers for manufacture and national distribution in 1952 is announced by Sweden Freezer Mfg. Co. here.

The models include a new "Frigidmixer," M1-169A3, which is a self-contained, air-cooled, table model for making complete milk shakes and malts in the machine. For the large-volume milk shake production, the firm also offers the M-190B1, a lighter horsepower version of the M1-190 Frigidmixer which was introduced last year.

Designed especially to meet large production requirements is the 1-200, a heavy-duty, automatic continuous freezer, while in contrast to it is the 1-9SA3, a one-gallon, air-cooled, table model, batch freezer that features plug-in operation and automatic controls. For making hard ice cream

there is the new 1-98, a 5-gal. batch freezer.

Another automatic continuous model is the 1-169A3, a self-contained, air-cooled freezer with simplified switch control that serves a curl-top product. A 5-gal. batch freezer with automatic controls is the 1-99, designed for light-duty, soft ice cream production.

Introduction of its new models brings to a total of 18 the number of freezers made by Sweden.



Nor-Lake Bottle Cooler Made In 4, 6-Ft. Sizes

KEY NO. B-248

HUDSON, Wis.—A bottle cooler with recessed compressor built in 4-ft. and 6-ft. sizes, has been introduced by Nor-Lake, Inc. here.

A ¼-hp. compressor powers the 4-ft. size, and a ½-hp. compressor is used on the 6-ft. size. It features metallic baked enamel finish and easy-lift operating doors.

A complete catalog is available from Nor-Lake.

So easy to sell...

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Preventive Maintenance

How U.S. Air Force Uses It To Protect \$60,000,000
Investment In Air Conditioning & Refrigeration



Editor's Note: Preventive maintenance of refrigeration and air conditioning equipment not only saves money and insures against interruption of service for the user, but also can be a profit-maker for the contractor besides helping minimize the normal peaks and valleys of his business.

As a user of refrigeration on a vast scale, the United States Air Force has found that preventive maintenance gets better service out of equipment and prolongs its life. The discussion by William T. Smith describing how the Air Force operates this program will be of interest to contractors everywhere. This is the first of two installments.

Average Air Force Base Has 400 Units

CHICAGO—How the United States Air Force operates a preventive maintenance program to protect its \$60,000,000 investment in refrigeration and air conditioning equipment at bases in the U. S. was outlined at the annual RSES meeting here by William T. Smith of the Air Force Directorate of Installations.

"The Air Force is even more dependent upon refrigeration and air conditioning than many very large

industrial organizations due to its vast problem of feeding personnel throughout the world, to say nothing of its problems in other fields such as low temperature test facilities," Smith said.

"The average Air Force base has approximately 400 refrigeration units of varying sizes that total something like 500 hp. One representative base has one cold storage plant, 72 air conditioning systems, and 481 refrigeration units of all sizes and types. Some of our larger bases have much more, and many of our air conditioning systems and low temperature testing plants would challenge your imagination," he averred.

Can Save \$6,000,000

"Assuming that the average life of the equipment is 10 years, then each year the Air Force is required to spend some \$6,000,000 in replacing worn-out equipment. Think what could be saved," Smith suggested, "if just one more year of life could be squeezed out of this equipment. It would be like handing our government a bonus check of \$6,000,000."

"Now just how does the Air Force refrigeration mechanic go about keeping his equipment functioning as it should? Bear in mind that the continued and uninterrupted operation of these facilities is most important because it plays its part in accomplishing the over-all mission of the Air Force."

"The cold storage plant may have several hundred thousands of dollars of perishable substance—the optical repair shop may depend upon that air conditioning system to control the atmosphere for a good repair job—and the success of a major surgical operation may depend upon that air conditioning system working without fail when needed."

"So the answer to this question of how the Air Force refrigeration mechanic goes about his job is of

great concern to those of us responsible for the satisfactory operation of these facilities.

Regular Service Pays Off

"You men know full well that if you sit in your shops and wait for service calls to come in from your customers, you find yourself overworked during the hot days and with little or nothing to do at other times. You have learned that if you make regular visits to the plants that you have under contract for service you accomplish three things:

"First, and all important, you catch little troubles and correct them before they get large enough to tie up your whole shop at one time; second, you keep that plant in operation for your customer; and last, but not least, you spread the work over into the cool days and reduce the extra work for hot days. By so operating you have your men available for emergencies and for special service calls."

"You have a name for this type of programmed maintenance. So do we. You and we call it Preventive Maintenance."

Pays Large Dividends

"The Air Force knows that preventive maintenance long ago proved its net worth—that it will pay large dividends in both reduced maintenance costs and in the tremendous losses sometime experienced when refrigeration plants fail to function. So even if preventive maintenance did nothing but keep the plants in operation it would pay its way, but it also saves the Air Force money."

"In the functioning of the preventive maintenance system the Air Force refrigeration mechanic goes about his job in a very orderly manner indeed. Just as you have learned that a systematic schedule of checking operations will result in your catching all the deficiencies, so have the Air Force mechanics learned that preventive maintenance services are effective only if they are thorough and conform to certain rules."

"The whole story about preventive maintenance services for refrigeration equipment," Smith said, "is set forth in three Air Force Manuals as follows:

"1. Inspections and P/M services for domestic, reach-in, and walk-in refrigerators and miscellaneous refrigeration systems. 2. Inspections and P/M services for ventilating, evaporative (desert) cooling, and air conditioning systems. 3. Inspections and P/M services for warehouse cold storage plants and ice plants."

User Most Important Factor

"The user is the most important single factor in preventive maintenance. Through him the service mechanic learns of the problems arising during the use of a piece of equipment. In addition, the user performs daily preventive maintenance services as a matter of regular routine. To guide the user the refrigeration mechanic posts a card on or near all refrigerators and miscellaneous refrigeration systems. These cards tell the user just what he is supposed to do and what he is not supposed to do."

For each of the three classes of inspection (Continued on next page)

Table 1—U. S. Air Force Preventive Maintenance Plan
On Domestic and Commercial Refrigerators

Semi-Quar-
annually terly Monthly

DOMESTIC REFRIGERATORS

- 1 **Doors:** Check doors for proper closing. Adjust latches to permit tight closing. Lubricate hinges and latch mechanisms. Check gaskets for missing, worn, or set sections.
- 2 **Cabinet Surfaces:** Check interior and exterior surfaces for badly chipped spots. Retouch with synthetic enamel paint or lacquer to prevent further deterioration.
- 3 **Electric Cord Connection:** Check electric cord for damaged, worn, or frayed insulation. Check operation of light switch and replace broken or burned-out light bulb.
- 4 **Temperature Control:** Check operation of temperature-control switch and contact points. Adjust dial to normal setting.
- 5 **Condenser Coil:** Clean condenser coil and fins. Wipe condenser fan blades.
- 6 **Normal Operation:** Observe mechanical equipment for normal operation. Investigate any unusual noises or vibrations while refrigerator is operating. Question user about operating deficiencies and other problems he has found.
- 7 **Open Type Systems:** Check compressor-motor bearings; lubricate only when necessary. (See par. 7.) Observe motor when starting for proper speed pick-up. Check compressor drive for pulley alignment and condition of belts. Wipe dirt from all mechanical equipment and from condensing-unit compartment.
- 8 **User Instructions:** See that proper instructions (WD AGO Form 5-38) are conspicuously posted on or near refrigerator and that user understands services he must perform.

REACH-IN REFRIGERATORS

- 9 **Doors:** See item 1.
- 10 **Cabinet Surfaces:** See item 2. Check for cracks or defects in wood-surfaced refrigerators. Report major defects which would be detrimental to operation of refrigerator.
- 11 **Electric Cord Connection:** See item 3.
- 12 **Condenser Coil:** See item 5.
- 13 **Normal Operation:** See item 6.
- 14 *** Pressure Control:** Observe pressure-control operation and operating pressures. Adjust if necessary for normal operation. Check cut-in and cut-out pressures of low-pressure cut-out. Check for efficiency of compressor valves by recording maximum vacuum obtainable. On water cooled units check cut-in and cut-out pressure of high-pressure cut-out. Record pressures on WD AGO Form No. 5-37 before and after adjustments.
- 15 *** Expansion Valve:** Check operation of expansion valve. Adjust only when necessary. Install service drier in liquid line temporarily if presence of moisture in the system is suspected.
- 16 *** Refrigerant Charge:** Check refrigerant charge with liquid sight gauge when it is suspected that refrigerant charge is low.
Caution: Perform service item 22 before adding refrigerant.
- 17 **Cooling Coil:** Clean cooling coil, fins, drain pan, and drain-line connection. Check cooling-coil supports, casing, and drain pan for rust; paint when necessary to prevent further deterioration.
- 18 *** Cooling Coil Fan Motor:** Check fan-motor bearings; lubricate only when necessary. (See par. 7.) Observe fan operation and check for excess vibration. Wipe dirt from fan blades and motor.
- 19 *** Compressor Motor:** Check motor bearings; lubricate only when necessary. (See par. 7.) Observe motor when starting for proper speed pick-up. Wipe dirt from motor housing.
- 20 **Compressor Drive:** Check compressor drive for pulley alignment, belt tension, and condition of belts.
- 21 *** Compressor Body:** Check compressor and shaft seal for sign of gasket and seal failure. On compressors provided with filler or drain plugs, check level and condition of crankcase oil every six months.
- 22 **Refrigerant Leaks:** Test all refrigerant lines, connections, and refrigerant-containing equipment for leaks.
- 23 **User Instruction:** See item 8.

Note: If operation is not normal, check items marked * during monthly inspection.

(Continued on next page)

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| Special Instructions—See TM 5-671 for detailed instructions and procedures. | | | |
| REPAIRING OFFICER | DATE | CABINET SERIAL NO. | SIZE |
| LEGEND FOR MARKING | | SYMBOLS | |
| ✓ SATISFACTORY | ✗ ADJUSTMENT REQUIRED | ✗+ REPAIR OR REPLACE | ✗- DEFECT CORRECTED |
| SEMI-ANNUALLY QUARTERLY MONTHLY | | SEMI-ANNUALLY QUARTERLY MONTHLY | |
| DOMESTIC REFRIGERATORS | | WALK-IN REFRIGERATORS | |
| 1 DOORS (If applicable) | 24 DOORS (If applicable) | 25 CABINET SURFACES (If applicable) | 26 FLOOR PAN (If applicable) |
| 2 CABINET SURFACES (If applicable) | 25 CABINET SURFACES (If applicable) | 27 ELECTRIC POWER SUPPLY (If applicable) | 28 NORMAL OPERATION |
| 3 ELECTRIC CORD CONNECTION (If applicable) | 26 FLOOR PAN (If applicable) | 28 NORMAL OPERATION | 29 CONDENSER COIL |
| 4 TEMPERATURE CONTROL (If applicable) | 27 ELECTRIC POWER SUPPLY (If applicable) | 29 CONDENSER COIL | 30 PRESSURE CONTROL (If applicable) |
| 5 CONDENSER COIL | 28 NORMAL OPERATION | 30 PRESSURE CONTROL (If applicable) | 31 EXPANSION VALVE (If applicable) |
| 6 NORMAL OPERATION | 29 CONDENSER COIL | 31 EXPANSION VALVE (If applicable) | 32 REFRIGERANT CHARGE |
| 7 OPEN TYPE SYSTEMS | 30 PRESSURE CONTROL (If applicable) | 32 REFRIGERANT CHARGE | 33 COOLING COIL |
| 8 USER INSTRUCTIONS | 31 EXPANSION VALVE (If applicable) | 33 COOLING COIL | 34 COOLING COIL FAN MOTOR (If applicable) |
| WALK-IN REFRIGERATORS | | WALK-IN REFRIGERATORS | |
| 9 DOORS (If applicable) | 34 COOLING COIL FAN MOTOR (If applicable) | 35 COMPRESSOR MOTOR (If applicable) | 36 COMPRESSOR DRIVE (If applicable) |
| 10 CABINET SURFACES (If applicable) | 35 COMPRESSOR MOTOR (If applicable) | 36 COMPRESSOR DRIVE (If applicable) | 37 COMPRESSOR BODY (If applicable) |
| 11 ELECTRIC CORD CONNECTION (If applicable) | 36 COMPRESSOR DRIVE (If applicable) | 37 COMPRESSOR BODY (If applicable) | 38 REFRIGERANT LEAKS |
| 12 TEMPERATURE CONTROL (If applicable) | 37 COMPRESSOR BODY (If applicable) | 38 REFRIGERANT LEAKS | 39 USER INSTRUCTIONS |
| 13 CONDENSER COIL | 38 REFRIGERANT LEAKS | 39 USER INSTRUCTIONS | |
| 14 NORMAL OPERATION | 39 USER INSTRUCTIONS | | |
| 15 PRESSURE CONTROL (If applicable) | | | |
| 16 EXPANSION VALVE (If applicable) | | | |
| 17 REFRIGERANT CHARGE | | | |
| 18 COOLING COIL | | | |
| 19 COOLING COIL FAN MOTOR (If applicable) | | | |
| 20 COMPRESSOR MOTOR (If applicable) | | | |
| 21 COMPRESSOR DRIVE (If applicable) | | | |
| 22 COMPRESSOR BODY (If applicable) | | | |
| 23 REFRIGERANT LEAKS | | | |
| 24 USER INSTRUCTIONS | | | |

FIG. 1 shows work sheet (reduced from 8 by 10-in. size) employed by U. S. Air Force refrigeration mechanics in preventive maintenance of household, reach-in, and walk-in refrigerators.

Table 1—Cont.

WALK-IN REFRIGERATORS

- 24 **Doors:** See item 1.
- 25 **Cabinet Surfaces:** Check for cracks or defects in wood-cement-, or mastic-lined refrigerators. Report major defects which would be detrimental to operation of refrigerator. Check for defective or loose joints in sectional prefabricated refrigerators.
- 26 **Floor Pan:** Check floor pan for rust. Paint when necessary to prevent further deterioration. Clean drain connection.
- 27 **Electric Power Supply:** Check electric power supply switch, electric wiring, and connections for defects. Check operation of light switch and replace broken or burned-out light bulb.
- 28 **Condenser Coil:** See item 5.
- 29 **Normal Operation:** See item 6.
- 30 **Pressure Control:** See item 14.
- 31 **Thermostat:** Check operation of thermostat and liquid-line solenoid valve.
- 32 **Expansion Valve:** See item 15.
- 33 **Refrigerant Charge:** See item 16.
- 34 **Cooling Coil:** See item 17.
- 35 **Cooling Coil Fan Motor:** See item 18.
- 36 **Compressor Motor:** See item 19.
- 37 **Compressor Drive:** See item 20.
- 38 **Compressor Body:** See item 21.
- 39 **Refrigerant Leaks:** See item 22.
- 40 **User Instructions:** See item 8.

WATER-COOLED CONDENSERS

- 41 **Water Lines:** Check water line, fittings, valves, and drain line for leaks and security. Check strainer for dirt. Adjust pressure-regulating valve for maximum water pressure of 60 p.s.i.
- 42 **Water Regulating Valve:** Check operation of condenser water regulating valve for proper closing; when using "Freon-12," adjust for minimum refrigerant condensing pressure of 100 p.s.i.g.
- 43 **Water Temperature:** Check condenser water inlet and outlet temperatures. Record inlet and outlet temperatures before and after adjustments. Report abnormal temperature range (over 15° F. or under 7° F. difference between inlet and outlet temperatures) for subsequent inspection of condenser water passages.

Note. If operation is not normal, check items marked ** during monthly inspection.

Air Force--

(Continued from preceding page)

pection and preventive maintenance services, the Air Force employs a "work sheet" listing the items to be checked and noting whether they're to be done semi-annually, quarterly, or weekly.

A total of 43 items are listed on the work sheet for domestic, reach-in, and walk-in refrigerators and water-cooled condensers (Fig. 1). The work sheet for air conditioning equipment (Fig. 2) lists 39 items, while 43 are listed for cold storage plants.

The accompanying lists show not only the items to be checked but also the detailed instructions on each (Tables 1 and 2) as used by the Air Force for domestic and commercial boxes plus the items for air conditioning inspection and preventive maintenance.

As will be noted in Fig. 1 and Table 1, there are numerous items to be checked as a matter of routine with domestic and commercial refrigerators. These range all the way from checking doors for proper closing to a monthly leak test of all refrigerant lines, connections, and equipment containing refrigerant.

(To Be Continued)

'Visoleak' In System Identified by Tags

CHICAGO—Allin Mfg. Co. now offers a new service to refrigeration servicemen who use "Visoleak," the "visible leak detector."

With each 4-oz. plastic bottle, two red tags are included. The tags are imprinted with the statement "This system is treated with Visoleak. If appearance of bleeding occurs at any point, notify your maintenance man immediately."

Below this is space for the serviceman to write in his name and telephone number. When the card is attached to any convenient part of the refrigeration unit, it can readily be seen and commands attention because of its red color.

Visoleak is a chromatic dye "completely homogenized with a high quality refrigeration oil," the company explained. "The dye intermixes with the oil in a refrigeration system and shows evidence of leaks by the tell-tale blood red spot it produces on coming through any leaking joints."

New Akron Div. Set Up By Philco Distributor To Be Headed by Breckheimer

AKRON, Ohio—A new appliance distributing center for Philco products is being established in Akron to better serve Summit, Stark, Portage, Wayne, Holmes, and Tuscarawas counties, it was announced here.

Located at 422 South Broadway, the new Akron Div. of Strong, Carlisle & Hammond will boast a completely equipped parts department, and a modernized display room and service department.

The division is headed by Charles Breckheimer, who has been with Philco Corp. as a district representative. He is a graduate of Syracuse university and a former lieutenant commander in the Navy.

Max Bauer is manager of Philco parts and accessories; Richard Poling, radio and TV service manager; Herman Feldman, service manager for Philco refrigerators, ranges, air conditioners, and freezers; Bob Lukens, sales manager for Stark, Holmes, Wayne, and Tuscarawas counties; William Hoard, Akron sales manager; Robert Morrison, Canton sales manager; and Bruce Lauback, advertising and sales promotion manager.

He has served as sales manager of Gross Distributors, Inc., New York City, and regional manager of the Premier Co.

The new distributors are Van Deren Hardware Co., Lexington, Ky.; G. Fetter Puthuff Co., Jacksonville, Fla. (replacing Thruway Distributors, Inc.); Vogel Distributors, Inc., Columbus, Ohio (replacing Ohio Appliances, Inc.); and Kleb Distributing Co., Kansas City, Mo. (replacing Star Distributing Co.).

Air Force Schedules 4-Day Technical Conference on Refrigeration Problems

WASHINGTON, D. C.—Refrigeration and air conditioning engineers in the United States Air Force will attend a four-day technical conference at the Bolling Air Force Base here March 3 to 6 to hear discussions covering all phases of refrigeration.

The program, which will include talks by both Air Force personnel and civilians, is as follows:

MONDAY, MARCH 3

Opening Remarks, Brig. Gen. Ralph O. Brownfield, deputy dir. of instl., Hq. USAF.

Purpose of the Meeting, Wm. T. Smith, chief, Refr. & Air Cond. Section, Hq. USAF.

ACRMA "Equipment Standards," Wm. B. Henderson, exec. vice pres., Air Conditioning and Refrigeration Machinery Association, Washington, D. C.

ASRE "Codes and Standards" M. C. Turpin, secretary, American Society of Refrigerating Engineers.

Air Force Technical Training Program, R. M. Boyer, Refr. & Air Cond. Section, Hq. USAF.

Air Force Mechanics' Training Program, C. S. Brillinger, dir. of training, York Corp., York, Pa.

Preventive Maintenance, Lt. Col. J. E. LaBuda, chief, Utilities Branch, Hq. USAF.

Evaporative Cooling Systems, John O. Johnson, refr. engr., Hq. Air Training Command.

Ventilating Systems, Welsh C. Whittlesey, mech. engr., Hqs. Command.

TUESDAY, MARCH 4

Design of Air Conditioning Systems, James O. Williamson, mech. engr., Hq. Air University.

Controls for Air Conditioning Systems, James M. Anders, chief, Refr. Unit, Hq. Strategic Air Command.

Special Air Conditioning Systems, A. I. McFarlan, pres., A. I. McFarlan & Co., New York City.

Design Objectives for Air Conditioning Equipment, R. S. Gonzales, mgr., Application Dept. and C. R. Neeson, technical consultant, compressor design, Airtemp Div., Chrysler Corp., Dayton.

Air Conditioning System in Albrook AFB, J. M. Buckaloo, refr.

engr., Hq. Military Air Transport Service.

Condenser Water Reheat, Multi-zone Units and Absorption Machines, L. B. Mighell, Washington branch manager, and Jack Schmidt, application engineer, Carrier Corp., Syracuse, N. Y.

WEDNESDAY, MARCH 5

Air Conditioning Control System for Air Force Theaters, M. D. Kic-zales, exec. engr., Army and Air Force Motion Picture Service, Washington, D. C.

Humidity Control in a Packaged Air Conditioning Unit and a Preview of the General Electric Reverse Cycle Air Conditioning Unit, Charles Rigby, mgr., Defense Products Sales, and Paul M. Hooven, Washington government representative, General Electric Co., Bloomfield, N. J.

Chemical Stability in Sealed Refrigeration Systems, P. B. Beemster-boer, government sales, and F. E. Lehman, assistant commercial sales manager, Frigidaire Div., General Motors Corp., Dayton.

The Design and Installation of Ventilating Systems, George Richmond, chief ventilating engineer, Hunter Fan and Ventilating Co., Memphis, Tenn.

Business Session, Wm. T. Smith, Hq. USAF.

Duties of a Command Refrigeration Engineer.

Base Data and other Reporting Media.

"Freon" Control Program.

AFR 91-8, 7 Nov. 51, Air Force Policy for Refr., Vent., and Air Cond. (Actual discussions will be by various conferees.)

THURSDAY, MARCH 6

Machinery Design for Cold Storage Plants, W. L. Pharo, mgr., Refr. Dept. and David J. Wood, Washington distr. mgr., York Corp., York, Pa.

Low Temperature Insulation for Cold Storage Work, Sloane C. Martin, commodity manager, Low Temperature Insulation, and C. Q. Livingston, technical sales service, Armstrong Cork Co., Lancaster, Pa.

Round Table Discussion, Wm. T. Smith, Hq. USAF.

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Blackstone Names 2 District Mgrs., 4 Distributors

JAMESTOWN, N. Y.—Appointments of two district sales managers and four new distributors have been announced by Blackstone Corp. here.

The district managers are Vincent J. Stanley and Blyss R. Gates. Stanley, former western New York district representative of Philco Corp., will cover the Rochester, N. Y., trading area.

Gates will represent Blackstone in the east central section of the country out of headquarters in Philadel-



Plastic Dust Filter Developed by Goodyear Requires No External Source of Power

By C. Dale Mericle

ST. LOUIS.—How the known tendency of certain plastic materials to collect dust has been utilized to design an air filter claimed to have high efficiency in removing fine dust particles was described before the American Society of Heating and Ventilating Engineers at its 58th annual meeting here.

Actually, the filter operates on the principle of electrostatic precipitation, but requires no external source of power. Movement of air through the filter generates an electrostatic charge strong enough to attract and hold dust, according to W. T. Van Orman, of the Goodyear Tire & Rubber Co. research division.

Thus, it's called a "self-charging electrostatic" air filter.

Incidentally, Goodyear expects to have this filter on the market shortly in sizes comparable to conventional viscous type filters, Van Orman indicated.

And in addition to the claims made

for its effectiveness, the filter can be readily cleaned, it was said.

"The directions are to rinse gently in cold water. No hot water, no detergent, no re-oiling is needed. Any householder can do the job effectively without additional equipment. After this simple cleaning method," Van Orman explained, "the filters may be drained a few minutes and restored to service even though damp. The filters may be cleaned over and over again without loss of performance."

There was some dispute, however, of the claims for efficiency of the self-charging filter as made in the paper prepared by Van Orman and H. A. Endres, also of the Goodyear research division. Data was presented which claimed to show that this new type filter permitted the passage of large amounts of dust and further that the smoke test employed by Goodyear should be considered as final proof of a filter's efficiency.

"Filter ratings by smoke tests are necessary and desirable to bring out differences in filter performance," the authors contend, however.

100% EFFICIENCY UNNECESSARY FOR HOMES

And as for over-all efficiency, "in household service where the air is recirculated as often as 100 times per day it is not necessary to achieve 100% actual efficiency," they stated. "An electrostatic filter will remove a considerable portion of the dust particles on each passage, and after several trips through the filter the air will be essentially clean."

Because certain plastics will generate an electrostatic charge under the influence of an air stream, "they will attract and retain fine dust particles from the air by electrostatic precipitation," Van Orman told the society.

"Among the materials that have been found to exhibit this phenomenon are those which can be formed into thin strips by calendaring, extrusion, or casting from solution and then shredded to form a porous mass. They can also be extruded and drawn into filaments or fibers similar in size and shape to the glass fibers employed in air filters."

Other types of "electrostatic" materials can be employed as a coating on glass, vegetable, or animal fibers, and shredded paper," the speaker suggested.

POLYSTYRENE, POLYETHYLENE EXCELLENT DUST COLLECTORS

A good measure of a material's potential as a dust collector is its surface resistivity, and on this score polystyrene and polyethylene are excellent dust collectors, according to Van Orman.

In addition to the initial residual charges on the surface of plastics, the passage of air currents enhances these charges to a higher value and consequently voltages as high as -1,200 volts have been noted.

"The materials that are most suitable for use in self-charging electrostatic air filters develop both positively and negatively charged areas in the same mass and will, therefore, attract and retain both types of charged particles."

With respect to another problem in this connection, Van Orman pointed out that "many electrostatic materials will collect dust even under conditions of high humidity."

"A daily laboratory weight test on a full scale filter did not show any decrease in weight pick-up of atmospheric dust due to high humidity conditions. On a 10,000-mile railroad car test where three fourths of the mileage was run on rainy or damp days, the filters were found to give very satisfactory performance."

"In a complete season's run in homes, about 100 test filters were in no way adversely affected by high humidity. Therefore, if the proper materials are selected, moisture is not a problem with the self-charging electrostatic filters."

With respect to the problem of testing and evaluating air filters, Van Orman took issue with the usual procedure of "drawing air through a specimen filter at a predetermined rate, the air having been previously impregnated with a so-called standard dust, and determining the quantity of dust removed."

TEST DUST NOT TYPICAL OF CITY ATMOSPHERES

"The fundamental deficiency of this method of evaluation is that the dust used is not representative of a normal city atmosphere inasmuch as it does not contain highly dispersed carbonaceous matter. It is the finely divided carbon present in the air in the form of soot and smoke that is responsible for most of the soiling of walls and furnishings in homes, offices, stores, and other types of buildings."

"These highly dispersed and electrically charged carbon particles become deposited on such surfaces by thermal or electrostatic precipitation, causing a considerable economic loss in cleaning and redecorating expense."

"The simplest and most convincing demonstration of the effectiveness of the self-charging electrostatic air filter is to use it in series with a conventional impingement type filter in a heating, ventilating, or air conditioning system," asserted Van Orman.

"When the electrostatic filter is placed downstream from the impingement filter, it collects dust which has passed through the latter. When the position of the filters is reversed the electrostatic filter leaves practically no dust in the air stream that is retainable by the impingement filter and the latter remains substantially clean."

ELECTROSTATIC VS. IMPINGEMENT TYPE

A series of actual tests along these lines was made in a dining car operating between Chicago and Colorado Springs, Colo., it was reported. Here two 1-in. thick electrostatic filters were taped to a single 2-in. filter of the metal impingement, oil-coated type.

One such assembly was placed on each side of the car, one with the impingement filter upstream, and other in reverse position. Each filter was weighed before the start of the test, at 4,000 miles, and finally at 10,000 miles.

"The results . . . indicate that no dust was picked up by [the impingement] filter when it was downstream from the electrostatic filters. When [the impingement] filter was upstream from the electrostatic filters a very considerable amount of hard-to-catch dust passed through it which was then picked up by the electrostatic filters," Van Orman declared.

With the impingement filter in the upstream position, "it picked up only 12% of the total dust collected, whereas the electrostatic filters picked up 88%, even though located downstream," he said.

Another type of field test of the electrostatic filter was made by installing them in 44 Akron, Ohio

homes. After a winter's operation, a survey of users found that 87% experienced less dust, while 7% reported no difference (6% didn't reply), it was said.

"Where dust allergies were encountered in the homes equipped with electrostatic filters, a questionnaire revealed that in 75% of the cases there was improvement, and in 12½% there was no effect," added Van Orman. "For 12½% there was no answer. The general observation was that the electrostatic filters kept the walls, curtains, drapes, and furniture in the homes cleaner."

For its laboratory tests, Goodyear found the conventional carbon black unsuitable as a dust medium and so devised a smoke generator which produced an aerosol of fine smoke by burning a 50-50 mixture of alcohol and benzene under controlled conditions.

The smoke thus produced consisted of carbon particles 0.05 microns in size and of a weight that "more closely approaches the density of atmospheric dust."

Reaction to Van Orman's presentation was varied, some being doubtful that the smoke test was a satisfactory method of judging filter efficiency. Other tests purportedly showed that this type of electrostatic filter would not hold larger particles of dust.

To this Van Orman reported: "We believe there are many filters available to pick up coarse particles. Our philosophy is to pick up the finest particles. We also have evidence that we are removing cigarette and other household odors."

The position of both viewpoints was perhaps summed up by L. T. Avery when he commented that "air cleaning involves a procession of cleaning steps. No one method or device seems to do a complete job. This new method will take out soot, which is important. But most important is the fact that it can be cleaned easily in cold water. Thus, it could be cleaned automatically in a commercial system."

Chicago Home Builders To Co-Sponsor Modern Living Show May 17-25

CHICAGO.—For the second consecutive year, the Electric Association will cooperate with the Chicago Metropolitan Home Builders Association in co-sponsoring the Modern Living Exposition to be held at Navy Pier, May 17 through 25, reports Harry Alter, Electric Association president.

Merle J. Lucas, Commonwealth Edison Co., has been appointed general chairman of the Electric Association's Exposition Committee.

Lucas reported that 80% of the total booth space allotted to the electrical industry in 1951 was sold within one week after space sales were opened.

The names of exhibitors already signed up are: Frigidaire Sales Corp.; The Sampson Co.; The Hoover Co.; Nash-Kelvinator Sales Corp.; General Electric Supply Corp.; Thor Corp.; R. Cooper, Jr., Inc.; Westinghouse Electric Supply Co.; Altorfer Bros. Co.; The Harry Alter Co. (Croaleys); Malleable Iron Range Co.; H. U. Mann, Inc. (Apex).

In addition to individual exhibits of member companies, the Electric Association has been allotted space for educational exhibits featuring adequate wiring and the Electric Cooking Institute.

In all, 10,000 ft. of space will be devoted to products and services which make for "better electrical living."



YORK-HEAT'S new table-top oil-fired boiler unit will be located in the kitchen of the 5,000 new homes built at Levittown, Pa.

York-Shipley To Supply 5,000 Oil Heating Units For Levittown, Pa. Homes

YORK, Pa.—The contract for furnishing 5,000 oil-fired boiler units for the new Levittown housing development in Bucks County, Pa., has been awarded to York-Shipley, Inc., the manufacturer of automatic heating equipment announced.

This is the fourth contract that York-Heat has received from the Levitt organization for heating plants for Levitt homes. In the last four years, more than 11,660 York-Heat units have been installed in the Levittown, L. I., N. Y. development.

The 1952 contract, valued at more than \$1,500,000, is claimed to be the largest ever signed for household heating equipment. The York-Heat organization will also furnish the oil storage tanks.

A table-top type boiler unit will be built for the new Levitt homes. All units will be housed in a white casing with stainless steel top and splashboard. The unit's dimensions are 25 in. deep, 30 in. wide, and 36 in. high.

The complete boiler unit, including burner, expansion tanks, circulator, domestic hot water coil, diagonal tubular boiler, and controls, is housed inside the cabinet in the kitchen.

Three versions of the boiler unit will be built to fit the three sizes of homes that will be built in the new town. For the small two-bedroom "Budgeteer" home, a left-hand boiler with top smoke outlet will be used. The medium-sized home—the "Levittowner," a three-bedroom home,—will use a standard right-hand boiler while the largest home—the "Country Clubber," a three-bedroom, two-bathroom home,—will have a larger capacity hot water heating coil and baffling in the fire box which will increase boiler capacity by 10%.

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HOME & FARM FREEZERS



15-UNIT FRESHMASTER FREEZER locker cabinet installed in New York apartment house basement contains three sections of five individual 6-cu. ft. compartments, holds more than 3,000 pounds of frozen foods for tenant families.

Freezer Owners Assn. Expands Activities--

(Concluded from Page 1, Column 3) probing for a means to convince the average American housewife that a food freezer in her kitchen puts a supermarket in her home.

It is his thought that two important merchandising approaches have been neglected in the promotion of the home freezer and its use. One of these approaches is the dynamic nutrition story inherent in frozen foods; the other is the market potential of congested city areas where are massed the bulk of the nation's middle-income families. These families, he thinks, are the most likely prospects for a plan which would not only save them money, but would also give them new opportunities to eat foods of greater nutritional quality.

'NEW WAY OF LIFE' BOOSTS NUTRITION ANGLE

With these convictions, Bess launched over radio station WMGM in New York City a program which he called the "New Way of Life," sponsoring the broadcasts of Carlton Fredericks, a well-known nutrition commentator.

The broadcasts featured Fredericks' reiterated messages about the nutritional superiority of frozen foods. The commentator wages war against the over-processed, under-nutritive foods which come to America's dining tables. He speaks in praise of frozen foods, citing that their nutritive values remain constant because they are picked and quick-frozen at the peak of their freshness, whereas so-called "fresh" foods, often harvested before they are fully ripe, lose a considerable portion of their vitamin content in transportation.

Following these glowing commendations for frozen foods, Fredericks confided to his listeners that they could purchase at lower-than-retail prices a continuing supply of the kind of foods which would raise their standard of living yet save them up to \$35 a month on their food budgets, depending on the size of their families.

NO DOWN PAYMENT REQUIRED ON FROZEN FOODS

When a purchaser signed up for the plan he would receive a four-month supply of frozen foods—including meat, poultry, fish, vegetables, fruits, and juices—delivered with a home freezer. No down payment would be required for the food, and deferred payments were arranged for both food and freezer (clearance for the payment program has been obtained under Regulation W rules from the Federal Reserve Board, Bess says).

Fredericks explained further that purchasers of the plan were assured of continuing supplies of their food selections—still at quantity-discount prices—and still purchasable on a deferred payment basis. He added that participants would be provided with their own personal menus and recipes and would become members of the Freezer Owners Association of America, Inc., whose depots would supply their future food orders and keep them informed of current food prices. The radio public was then invited to write to the station for further details of the plan.

Bess recalls that the response to even the first New York broadcast was overwhelming, and has continued at a high peak. He states that as the

machinery of follow-ups to these leads went into motion, it was found that two sales were completed out of every seven inquiries.

The program became national in scope when, early in February, Carlton Fredericks became affiliated with the Liberty Network's 450 radio stations. Participation is now available to any home freezer or frozen food distributor, or locker plant operation, in areas where the plan's operation is feasible.

Distributors of home freezers will operate on an exclusive arrangement for the "New Way of Life"—FOA plan, Bess says. In addition to the Carlton Fredericks radio broadcasts in their area, participants are also provided with a comprehensive procedure outline calculated to create prospects and close sales.

COMPLETE PROMOTION PLANNED

A complete promotional kit is to be supplied, with newspaper advertising mats, mailing pieces, counter folders, window streamers, publicity releases, and sales manuals. Also provided is a financing plan worked out by Bess with various banking institutions.

The Freezer Owners Association of America, Inc. (FOA) which functions in conjunction with the freezer distributing operation, is described by Bess as a non-profit trade group set up to service its membership.

Membership of the FOA is comprised of frozen food distributors, converted locker plans, and the "New Way of Life" consumers. The association, with contacts among food packers and processors, keeps the FOA distributors informed of the best sources of foods at discounts made possible by its collective buying power.

The frozen food distributor or locker plant is, in effect, the local FOA depot, using already existing facilities for the storage and delivery of frozen foods. The advantage to the food distributor is that these customers who are "handed to him" by the "New Way of Life" freezer distributor in his area who gives him the original purchase order for the four-month supply of food delivered with each freezer, Bess says. Subsequent re-orders come directly from the customers, with whom he keeps in touch by way of the up-to-date price lists provided by the plan.

The apartment house phase of the program, which led to the installation at the Columbia university development at 90 Morningside Dr., came about when apartment residents made inquiry as to how they might participate in the program, even though they couldn't accommodate a home freezer in their compact "cliff dwellings."

DETAILS OF APARTMENT JOB

A 15-unit multiple "Zero-Stor" freezer locker was installed in the apartment building and an additional 15-unit system will be installed in the same building in the near future, it is reported.

The Freshmaster Zero-Stor is not a walk-in model. Its special construction permits it to be located in warm surroundings. Each 6-cu. ft. compartment in the cabinet holds up to 210 lbs. of frozen foods.

Exterior and interior of all sections of the cabinets are formed from heavy-gauge polished aluminum sheets, providing rust-resisting qualities. All exterior seams are sealed

to protect insulation from moisture and vapor penetration. A special heating element prevents frost from forming around doors.

The hermetic refrigeration unit which supplies refrigeration for the cabinet is remotely installed, at a distance up to 50 ft. from the freezer.

Outside dimensions of the 15-unit locker are 113 in. wide, 34 in. deep, and 78 1/2 in. high. Other unit sizes, which Freshmaster will make available, range from five individual compartments to as many as 30 or more.

Freshmaster's merchandising procedure leading to the basement lockers began by approaching the manager of the Morningside Dr. building and obtaining permission to inform its tenants of the proposed installation. This was done by mail-box circulars outlining the plan briefly and calling a meeting of the tenants.

It was explained that the building would contract to purchase the freezer lockers, amortizing their cost over a period of years through minimum rental fees charged monthly to tenants who wished to lease compartments. When the first 15 families signed up, the lockers were contracted for and installed.

Each family is given a key which opens the outer locker door and only one inner compartment. FOA food price lists are supplied to all participants, and frozen foods may be ordered by mail or telephone or by leaving orders in a box provided near the locker.

A bonded FOA depot driver, who has a master key, delivers each order directly to the individual compartment belonging to the purchaser. A packing slip is included. The tenant is billed by the FOA depot on a weekly or monthly basis, as preferred.

1951 NEMA Refrigerator Sales Total 3,797,260 December Volume Is 211,442

Complete Refrigerators Only

DECEMBER (16 Companies)

| Sizes | Domestic (48 States and D. C.) | Canadian | Other Foreign | Total |
|-----------------------------|--------------------------------------|----------|------------------|---------|
| 1. Less than 4 cu. ft. | | | | |
| 2. 4 cu. ft. | 1,623 | | 488 | 2,109 |
| 3. 5 cu. ft. | | | | |
| 4. 6 cu. ft. | 17,213 | | 3,649 | 20,862 |
| 5. 7 cu. ft. | 25,800 | 154 | 1,420 | 27,374 |
| 6. 8 cu. ft. | 48,183 | | 5,364 | 53,547 |
| 7. 9 cu. ft. | 20,086 | 55 | 1,755 | 21,896 |
| 8. 10 cu. ft. | 21,354 | 38 | 1,263 | 22,645 |
| 9. 11, 12, 13 cu. ft. & up | 61,144 | 14 | 1,851 | 63,009 |
| 10. Total | 195,463 | 361 | 15,778 | 211,442 |

YEAR

| Sizes | Domestic (48 States and D. C.) | Canadian | Other Foreign | Total |
|-----------------------------|--------------------------------------|----------|------------------|-----------|
| 1. Less than 4 cu. ft. | 118 | | | 118 |
| 2. 4 cu. ft. | 29,976 | 775 | 5,921 | 36,672 |
| 3. 5 cu. ft. | 1 | | | 1 |
| 4. 6 cu. ft. | 293,324 | 10,637 | 41,346 | 345,307 |
| 5. 7 cu. ft. | 388,418 | 9,407 | 44,166 | 441,991 |
| 6. 8 cu. ft. | 1,120,805 | 12,682 | 100,272 | 1,233,759 |
| 7. 9 cu. ft. | 484,395 | 17,116 | 39,774 | 531,285 |
| 8. 10 cu. ft. | 534,780 | 6,828 | 24,063 | 565,671 |
| 9. 11, 12, 13 cu. ft. & up | 613,807 | 6,230 | 22,219 | 642,256 |
| 10. Total | 3,465,824 | 49,075 | 367,781 | 3,797,260 |

Participating companies: Admiral Corp.; Avco Mfg. Corp.; The Coolers Co.; Deepfreeze Appliance Div.; Motor Products Corp.; Frigidaire Div.; General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Inc.; International Harvester Co.; Kelvinator Div.; Nash-Kelvinator Corp.; A. J. Lindemann & Hoverson Co.; Norge Div.; Borg-Warner Corp.; Refrigeration Div.; Philco Corp.; Sanitary Refrigerator Co.; Seeger Refrigerator Co.; Westinghouse Electric Corp.

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VOLUME 2

Condensers; Compressor Shaft Seals; Defrosting Evaporators; Compressor Oil; Charging Refrigerant; Humidity and Air Circulation; Carbon Dioxide; Use of Gauges; Trouble-Shooting; Preventive Maintenance; Control of Moisture; Leaks; Care of V-Belts; Lapping Seals; Plates; Service Charts.

VOLUME 3

Lost Time and Short Cuts; Refrigerants and Tables; Mollier Chart; Two and Three Stage Compression; Leaks and Moisture; Electric Currents; Single and Three Phase Systems; Motor Troubles; etc.

VOLUME 4

Cleaning Parts Before Repairs; Compressor Noise; Compressors in Parallel; Frozen Compressors; Service Problems; Overloaded Motors; Making Money in the Service Business; Absorption; Evaporative Cooling; The Heat Pump; Comparative Cost of Fuels.

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PATENTS

Week of December 11
(Continued)

2,578,555. PIN FOR HEAT EXCHANGE ELEMENTS. Andre Philippe Jean Mout, Paris, France. Application June 3, 1947. Serial No. 754,520. In France April 18, 1948. Section 1. Public Law 696, Aug. 2, 1948. Patent expires April 19, 1966. 5 Claims. (Cl. 307-308.19.)

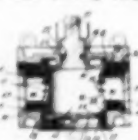


1. A heat exchange tube for exposure to gases that flow transversely of the longitudinal axis provided with a longitudinally disposed, longitudinally extending flange protruding from the tube surface in places of either side of said axis and formed in the edge portions thereof in contact with the tube with longitudinal slots that form with the tube surface passages converging in the direction of flow toward the space between said flange protruding structure of fluid into contact with the downstream surface of said tube.

2,578,596. VALVE AND SEALING STRUCTURE THEREFOR. Clyde A. Brown, Chicago, Ill., assignor to The Dole Valve Co., Chicago, Ill., a corporation of Illinois. Application Oct. 15, 1948. Serial No. 621,578. 12 Claims. (Cl. 251-103.)

1. In combination in a valve construction including a valve housing having a fluid passageway therein, a control member movably mounted within said housing and having a port therein registerable with said passageway, a sealing ring within said passageway at the juncture

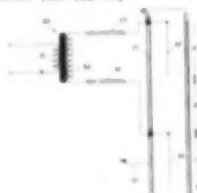
between said housing and member, means for urging said sealing ring into engagement with the housing and member.



sealing engagement with the contiguous surface of the housing and member at said juncture, and means including structure extending across said port for holding the sealing ring against protruding into said port in the relative movement of said housing and member carrying said port across said sealing ring.

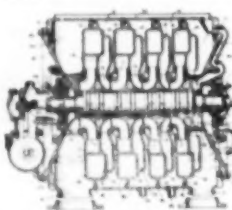
2. In combination in a valve construction of the character described, a housing a rotary member within said housing, said housing having a passage, said member having a port registerable with said passage but of smaller diameter, a sealing ring disposed within the corner formed by juncture of said passage and said member, a retainer for said sealing ring having a shape adjacent to said member complementary to the adjacent surface of the member and formed with a groove receptive of said sealing ring, said groove and housing having means cooperative on the line of movement of the port in said member during the rotation of the member to retain the sealing means against projection into the port.

2,578,598. ELECTRICAL PRECIPITATOR. Hans Kemperer, Belmont, Mass., assignor to Raytheon Mfg. Co., Newton, Mass., a corporation of Delaware. Application Oct. 18, 1946. Serial No. 703,504. 2 Claims. (Cl. 188-7.)



1. An electrical precipitator comprising means defining an elongated passage for a gas stream, said passage comprising first, second and third sequentially disposed zones of substantially equal extent, an ionizing electrode in each of said first and third zones only, said electrodes each being elongated and of substantially the same length as the zone it occupies, said electrodes being further disposed endwise in said tube with said second zone between their confronting ends, a source of alternating potential connected at one side to one of said electrodes and at the other side to the other electrode, means to pass gas to be cleaned in a continuous stream through said passage and successively past each of said first, second and third zones at a prescribed velocity, said velocity being chosen to provide that during a first half cycle of the alternating potential the gas in said first zone is ionized and in the succeeding half cycle the gas that was in said second zone during the first half cycle arrives in said third zone and is ionized.

2,578,617. MULTISTAGE CENTRIFUGAL COMPRESSOR. Ralph M. Watson, Bloomfield, N. J., assignor to Worthington Pump & Machinery Corp., Harrison, N. J., a corporation of Delaware. Application Nov. 15, 1946. Serial No. 710,070. 11 Claims. (Cl. 238-120.)



1. In a multi-stage centrifugal compressor, a series of unit-stage casings each including an impeller, a diffusion passage, and a return passage for delivering fluid to the suction of the succeeding unit-stage casing, a housing enclosing all of



Government Contracts

PROCUREMENT INFORMATION

The following is a list of proposed procurements issued by the various indicated U. S. Government procurement offices. This list is compiled and made available daily on a free pick-up basis. Prospective bidders may obtain complete bid sets by a request to the purchasing office under which the purchase is listed in this synopsis. In order to identify completely the bid invitation you wish by including in your request the item description, the invitation number or reference number and the opening date. This will save time in filling your request. For reasons of economy, specifications are normally not included with the bid invitations unless the specification is a new one. First time bidders on a particular item should request a copy of applicable specifications and drawings at the time the request for a bid is made.

DEPARTMENT OF DEFENSE

It is not necessary to refer solely to the issuing office for additional data on a bid invitation issued by any of the following U. S. Army Ordnance Offices: Ordnance Tank Automotive Center, Detroit Arsenal, Frankford Arsenal, Picatinny Arsenal, Watervliet Arsenal, and Watervliet Arsenal. Complete information on all purchases listed by any of these offices alone can be obtained from the Ordnance District Office nearest you. Its address is on file in your nearest Department of Commerce Field Office. Do not ask an Ordnance District Office for information on a purchase unless it is listed by one of the above-named offices. Ordnance District Offices do not have information on any other purchases.

Invitation for Bids numbers will be followed by the letter "T." Requests for proposals or quotations will be indicated in this column by the letter "Q." If numbered, the number will be followed by the letter "Q."

| Description | Quantity | Invitation No. | Opening Date |
|--|------------|----------------|--------------|
| Commanding Officer Naval Supply Depot, Mechanicsburg, Pa. | | | |
| Thermometers industrial | 2747 ea | 72-221698 | 11 Mar 52 |
| Thermometers dial-industrial various ranges and sizes to be used in accordance with various govt specs | 1105 ea | (72-221698A) | 11 Mar 52 |
| Commanding Officer, US Naval Air Station, Corpus Christi, Texas | | | |
| Refrigerators 8 cu ft | 20 ea | 216-66-52 | 28 Feb 52 |
| Commanding General, Columbus General Depot, Columbus 13, Ohio, Attn: Quartermaster Purchasing Division | | | |
| Refrigeration lines valves various | 52-327E | | 7 Mar 52 |
| 15 line items | | | |
| Officer in Charge of Construction, SQY-71885, U. S. Naval Station, New Orleans, Louisiana | | | |
| Air conditioning units at the port of embarkation New Orleans | Spec 33286 | | 4 Mar 52 |

said unit-stage casings, annular flanges on the perimeter of said unit-stage casings, said housing provided with grooves receiving said flanges for connecting each unit-stage casing to said housing independently of the other unit stage casings, said unit casings and flanges arranged to form a clearance space between the suction side wall of one unit-stage casing and the discharge side wall of the preceding unit-stage casing, said clearance space being sealed from each other by said flanges, a passage connecting the clearance spaces with the discharge of the next succeeding impeller whereby each unit-stage casing will be subjected to a relatively small pressure difference.

DESIGNS

165,375. HANDLE FOR REFRIGERATED CABINETS. Clare H. Kafer, Palmyra, Mich., assignor to Berco, Inc., Dearfield, Mich. Application July 31, 1951. Serial No. 16,066. Term of patent 14 years. (Cl. D67-3.)



The ornamental design for a handle for refrigerated cabinets, as shown and described.

AVAILABLE FOR LICENSING OR SALE

General Electric Co. offers the following patents for non-exclusive licensing on reasonable terms to domestic manufacturers. Applications for licenses may be addressed to the Manager, Patent Dept., General Electric Co., 1 River Rd., Schenectady, N. Y.

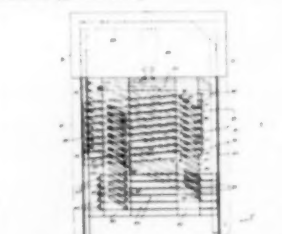
Pat. 2,497,677. Refrigerating System Including Flow Control Devices. Feb. 14, 1951.

Pat. 2,547,657. Thermostatic Selective Heating, Cooling, and Circulating Interlocking Control System. April 3, 1951.

Pat. 2,550,457. Multicylinder Refrigerant Compressing Apparatus. April 24, 1951.

Week of December 18

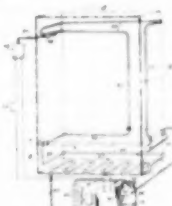
2,578,599. REFRIGERATION APPARATUS. Albert N. Nicholson, Santa Rosa, Calif., assignor of one-sixth to Joseph W. Backerby, Jr., one-sixth to Emory E. Leonard, and one-sixth to Joseph C. Bloom, all of Santa Rosa, Calif. Application Nov. 27, 1949. Serial No. 196,143. 2 Claims. (Cl. 68-114.)



1. In a freezer for freezing packaged food products, the said freezer having vertically stacked freezer plates movably mounted in fixed frames, means for vertically raising one entire plate at a time away from the next lower plate and then moving it diagonally and upwardly and rearwardly in parallel relation to the next lower plate, said means comprising pins located adjacent the four corners of

said plate, tension springs engaging said pins on the front corners of said plates, the rear end of said springs being anchored to said frames at a point above the rear corners of said plate, diagonally located slots located in said frames, said pins engaging in said slots, means for permitting vertical upward movement of said plate and preventing diagonal upward movement.

2,578,596. REFRIGERATION APPARATUS. Raymond E. Tobey, Springfield, Mass., assignor to Westinghouse Electric Corp., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Aug. 6, 1949. Serial No. 108,959. 3 Claims. (Cl. 62-117.3.)



1. In a refrigerator having a first and a second food storage chamber, a first evaporator adapted to cool said first chamber, a second evaporator adapted to cool said second chamber, said first and second evaporators being connected in series, refrigerant compressing and condensing apparatus for supplying said first evaporator with liquid refrigerant and for withdrawing refrigerant vapor from said second evaporator and means for actuating said apparatus intermittently to maintain the temperature of said second chamber between predetermined limits, said second evaporator being located above said first evaporator, said second evaporator comprises a tube having a flow area smaller than the flow area of said first evaporator, the construction and arrangement being such that the velocity of the gaseous refrigerant entering the tube during active periods of the compressing and condensing apparatus is increased to a value at which liquid refrigerant is carried in suspension in the gaseous refrigerant entering the tube, said tube being inclined for the gravitational flow of liquid refrigerant to the first evaporator during inactive periods of the compressing and condensing apparatus.

2,579,034. MULTIPLE RESPONSE OVERRIDE FOR THERMAL VALVES. John E. Dube, Chesterfield, and George D. Bower, University City, Mo., assignors to Alco Valve Co., University City, Mo., a corporation of Missouri. Application June 8, 1948. Serial No. 508,318. 30 Claims. (Cl. 68-8.)



1. In a mechanism of the kind described, a valve adapted to regulate flow between an inlet and an outlet, means for operating said valve in one direction in response to predetermined conditions, an

override means to return said valve in the opposite direction despite the condition of the operating means, said override means including a pressure-responsive movable wall subjected on one side to the inlet pressure, thermally-responsive means including a thermally expandable fluid on the opposite side of the wall, and abutment means connecting the wall and the valve for operation of the valve in said opposite direction upon reduction in temperature of the thermal fluid, or upon increase in inlet pressure, beyond predetermined extreme values of each.

2,579,053. DEHYDRATOR. Herbert H. Schulstadt, Middletown, N. J. Application May 15, 1946. Serial No. 669,919. 3 Claims. (Cl. 210-131.)



1. A dehydrator adapted for use in abstracting water from the medium of a refrigeration system comprising a body-member having an inlet at its lower end, a top end-cap secured to said body-member, a charge of drying agent contained in said body-member and spaced below said top end-cap, an outlet tube secured to said top end-cap and depending within said body member, said tube having an open end spaced below said top end-cap and terminating above said drying agent to provide a cavity above the lower open end of the tube for trapping any water which may escape past said drying agent, and a baffle device disposed at the lower open end of said outlet tube to deflect water out of range of said open end should any water escape through said drying agent.

2,579,370. REFRIGERATED COMMODITY BOX. John T. Fritzsche, Bay Village, Ohio. Application Nov. 18, 1949. Serial No. 196,547. 4 Claims. (Cl. 62-116.)



1. A commodity box of the character described comprising a container formed of two telescopically adjustable sections, each section including bottom, side and top walls and an end wall; the bottom, side and top walls of one section telescoping within the corresponding walls of the other section; thermal insulating means interposed between the telescoping walls of said section, the end wall of one section being adapted to be secured to the inner side of the building or house wall and the end wall of the other section being adapted to be secured to the outer side thereof, said end walls being provided with openings affording access to the interior of the container, and doors mounted on said end walls for normally closing said openings.

(To Be Continued)

Receives Dividends



F. I. DAVISON

F. I. Davison, Pres. of Davison Associates, Inc., Toledo, Ohio, says:

We have been in Commercial Refrigeration business for 20 years and for the past 16 years have been regular readers of AIR CONDITIONING & REFRIGERATION NEWS.

Among its many excellent features which we feel are most important to us are the "What's New" items every week, new patents, news stories of installations, and the Washington news. And we all get a big kick out of the "INSIDE INFO" column.

We believe that the time we take to read the NEWS pays excellent dividends, and we enjoy it. We wouldn't want to miss an issue.

Davison Associates, Inc. is an outstanding distributor-dealer in air conditioning, store fixtures, and commercial refrigeration covering Northwestern Ohio and Southern Michigan with four outside salesmen and fourteen servicemen.

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Refrigeration Problems and their Solution

by Paul Reed

For Service and Installation Engineers



Paul Reed

A New Low Temp. Refrigerant— 'Kulene 131'

As little as 12 years ago, that is, just before World War II, "low temperature refrigeration" meant temperatures of 0° F. for ice storage, down to about -20° F. for ice cream hardening. Most small scale laboratory or research needs for lowering temperatures were met with dry ice.

The demand by the armed forces for testing aeronautical instruments, blood plasma desiccation, metal cold-treatment, and similar applications, made possible the development of our present day technique for producing what we may call ultra-low temperatures.

Frozen food blast-freezers with temperatures down to -50° F. are common, and we are no longer amazed at temperatures of -150° F. and even lower.

Ammonia and "Freon-12" were

quite suitable for pre-war low temperatures down to ice cream hardening, but it was soon found that some other refrigerant was desirable for temperatures in the -40° to -50° region.

To meet this need Kinetic made "Freon-22" available. With a boiling point at atmospheric pressure of -41.4° it made temperatures of down to -75° possible with a suction pressure of 18 in. of mercury vacuum, and "Freon-22" was successfully used for temperatures down to as low as -100°, although this meant operating at a suction pressure of 25 in. of vacuum.

To avoid excessive losses from re-expansion in the cylinder and slipage past the pistons of the compressor, and still use compressors with commercial tolerances, two and three-stage compound compression and cascading were used.

VACUUM SUCTION PRESSURES UNDESIRABLE

However, such a low vacuum increases the difficulties of compressor lubrication and adds to the troubles of keeping a tight crankshaft seal. These problems were not insuperable and were solved, but they still remain a source of potential trouble.

Moreover, a low vacuum presents the constant problem of keeping the system free of leaks. At best, and with system pressures above atmospheric, leaks can cause loss of refrigerant. But with the evaporator on a low vacuum, leaks are more serious, for air and moisture get into the system, causing freeze-ups, corrosion, sludges, high head pressure, and other complications.

ETHANE AND ETHYLENE

None of the "Freons" then available would maintain suction pressures above zero gauge for temperatures below -41.4°, so some of the straight hydrocarbons were resorted to. The one mostly used was ethane, which at zero gauge, boils at -127.5°. In a -100° evaporator the ethane pressure is approximately 30 p.s.i.g. At -120° the ethane pressure is still 3 p.s.i.g.; and even at -150°, the pressure is only about 15 in. of vacuum.

Ethylene, another straight hydrocarbon is a somewhat lower temperature refrigerant. At zero gauge it boils at -155°, so even at -150°, the evaporator pressure is still just above atmospheric pressure, and at -175° it is only 15 in. of vacuum.

As far as their evaporator pressures are concerned, and the evaporator pressure is a very important practical consideration, these two refrigerants are quite suitable for ultra-low temperatures from -75° to -150° or even lower.

Moreover, they have other good characteristics, high vapor densities permitting low compressor displacements, acceptable net refrigerating effects, (about the same as "Freon-12"), and their coefficients of performance, horsepower per ton at the low temperatures, compare favorably with other refrigerants. Also, they are oil-soluble, thus simplifying oil return.

Their critical pressures and temperatures are very low, so that they are not suitable for use with warm condensing water; but this is of relatively small consequence, for in ultra-low temperature work, they are used in cascade, with their condensers operating at temperatures somewhere around -40°.

Their condensing pressures with ordinary air or water cooled condensers are high (several hundred p.s.i.g.), but again this is of little consequence in ultra-low temperature cascade systems with condensing temperatures for the low temperature stage far below 0° F., and corresponding condensing pressures between 100 and 200 p.s.i.g.

However, both ethane and ethylene, being straight hydrocarbons, are highly flammable, explosive, and toxic.

Within the system they are relatively safe, but there is a positive hazard from leaks or in adding or removing from the system.

'KULENE 131' CLASSED AS NON-FLAMMABLE AND AND NON-TOXIC

Until recently, there has been no non-flammable and non-toxic ultra-low temperature refrigerant below "Freon-22." A few months ago, however, Eston Chemicals announced a new refrigerant "Kulene 131," that at atmospheric pressure boils at -73.6° and is said to be non-flammable and non-toxic.

Like the "Freons," it is a "halo-carbon," that is, it consists of carbon with two of the halogens, but with no hydrogen. The "Kulene 131" molecule consists of one atom of carbon, three of fluorine, and one of bromine. Thus, its chemical formula is CF₃Br, and its chemical name is bromotrifluoromethane.

It will be remembered that the five halogens are chlorine, fluorine, bromine, iodine, and cyanogen, so "Kulene 131" makes use of the two halogens fluorine and bromine, whereas the "Freons" use the two halogens fluorine and chlorine.

| Temperature °F. | Pressure P.s.i.g. |
|-----------------|-------------------|
| -73.0 | 0 |
| -40 | 17.71 |
| -30 | 25.24 |
| -20 | 34.15 |
| -10 | 44.59 |
| 0 | 56.44 |
| 5 | 63.23 |
| 10 | 70.14 |
| 20 | 85.6 |
| 30 | 103.3 |
| 40 | 123.1 |
| 50 | 145.7 |
| 60 | 170.2 |
| 70 | 197.7 |
| 80 | 227.4 |
| 86 | 247.1 |
| 90 | 260.3 |
| 100 | 297 |
| 110 | 337 |
| 120 | 381 |
| 130 | 429 |
| 140 | 481 |
| 150 | 527 |

—From published data, Eston Chemicals, Inc.

Eston Chemicals' literature on "Kulene 131" also states that it has an "etheral" odor (this same term is often used in describing the odor of methyl chloride, so the odor of "Kulene 131" is probably slight). They also state that it is non-corrosive and may be used with any of the metals commonly used in refrigeration equipment.

Its critical pressure is 572 p.s.i.g., and its critical temperature is 153.5°, which are both high enough that "Kulene 131" can be used in ordinary water-cooled condensers.

At standard ton conditions of 86° condensing and 5° evaporator, its compression ratio is 3.36 to 1, which is quite low. This is a very desirable characteristic, particularly for a low temperature refrigerant.

Also at standard ton conditions, its net refrigerating effect is 29.31 B.t.u. per lb. Thus, 6.8 lbs. of 123.4 cu. in. of liquid per pound must be circulated per minute, per ton of refrigeration.

Of greater interest is the volume of "Kulene 131" vapor that must be circulated. It is very dense, (2.595 lbs. per cu. ft.) so that "theoretical" displacement at 5° is only 2.62 c.f.m. This is very low—lower than any of the commonly used refrigerants unless we include ethane (1.82 c.f.m.) or ethylene (1.4 c.f.m.).

A low compressor displacement is, of course, a very desirable characteristic for a low temperature refrigerant, for it reduces the size and cost of the compressor, which for most refrigerants must be large for ultra-low temperatures.

The horsepower per ton of most of the refrigerants vary but little. For "Kulene 131" it is 1.160. The same applies to the coefficient of performance, which for "Kulene 131" is 4.07.

Thus, "Kulene 131" appears to meet the need for a non-flammable, non-toxic refrigerant, with good

thermodynamic characteristics for low temperatures.

'FREON-12' AND 'KULENE 131' IN TWO STAGES

"Kulene 131" should work out very nicely with "Freon-12" in a two-stage cascade system with the low temperature evaporator at about -75°. The "Kulene 131" stage could have a -75° evaporator with a suction pressure of slightly under zero gauge, and a 10° condenser with a condensing pressure of 70 p.s.i.g., which would give a compression ratio of 5 to 1. This is well below the ratio of 10 to 1 usually considered the maximum allowable in low temperature work.

The "Freon-12" stage would have an evaporator temperature of 0° (allowing a 10° temperature difference between it and the 10° "Kulene 131" condenser) and a suction pressure of 9 p.s.i.g. Assuming a 90° condensing temperature, the "Freon-12" head pressure would be 100 p.s.i.g., thus giving a ratio of compression for the "Freon-12" stage of 8 to 1.

Such an arrangement should make an efficient two-stage cascade system that would be comparatively simple to build and which would present a minimum of field service troubles, provided, of course, that reasonable care is used in selecting the proper compressor displacement, motor horsepower and condenser capacity, and that the system is carefully installed. (See the Dec. 24 and 31, 1951 issues for other considerations in designing a low temperature cabinet.)

Although "Kulene 131" appears to bridge the gap between "Freon-22" and ethane, we are still left dependent on the flammable and toxic ethane and ethylene for temperatures below -100° and down to -150° or -175°. In next week's issue we will consider two more new refrigerants for temperatures below -75°.

R. C. Thomas Represents Lectrodryer In Virginia

PITTSBURGH—Ralph C. Thomas, president of Ralph-Charles-Thomas Co., Norfolk, Va., has been appointed a sales representative of Pittsburgh Lectrodryer Corp.

Thomas, a manufacturer's agent specializing in air conditioning and allied equipment, will have as his territory the state of Virginia, with the exception of Washington county.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$5.00 per insertion. Limit 50 words. 10¢ per word over 50.

RATES for all other classifications \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other addresses by actual word count. Please send payment with order.

POSITIONS AVAILABLE

WONDERFUL OPPORTUNITY for men to sell revolutionary new type of refrigerant dehydrator that is rated in water removing capacity. Choice territories available for those calling on refrigeration supply jobbers, in various sections. This is not just another line of driers, but a proven item in the field, that is excelled by no other. Write, BERNA CORPORATION, P.O. Box 155, Richmond Hill 18, N. Y.

AIR CONDITIONING & refrigeration field service engineer for manufacturer of compressors from 5 HP to 60 HP. Must have practical experience in installation and servicing. Travel required. Give age, education, experience and salary in letter to SCHNACKE, INC., Evansville, Indiana.

SALES ENGINEER—One of the oldest firms in southeast Florida, Miami area—distributor for leading air conditioning manufacturer, has opening for experienced and aggressive sales engineer. Excellent opportunity for right man. State experience. Write BOX 3616, Air Conditioning & Refrigeration News.

SALES ENGINEERS—Experienced in air conditioning and refrigeration—for Westinghouse Electric Corporation. Air Conditioning Division, sales offices in Midwest. Reply stating full qualifications, experience and salary to BOX 3636, Air Conditioning & Refrigeration News.

EXCELLENT OPPORTUNITY for a qualified advertising and sales promotion assistant for heating and cooling equipment lines. Well known manufacturer located in New Jersey. Age 28 to 40. Reply sending resume and salary requirement to BOX 3625, Air Conditioning & Refrigeration News.

MANUFACTURERS' REPRESENTATIVE wanted for a national concern manufacturing a complete line of commercial refrigerators to call on dealers, distributors and food chains. Have two openings available; one for the Pacific Northwest, including the State of California; and another for Western Pennsylvania, Western New York and Ohio. In writing, please furnish full background and experience. Applicant with allied line highly desirable. BOX 3629, Air Conditioning & Refrigeration News.

Remington Offers Dealers '52 Promotion Package

AUBURN, N. Y.—Remington Air Conditioning, Div. of Remington Corp., manufacturer of console and window model room air conditioners, has released a new dealer promotional package covering its 1952 line.

This is in the form of a handy, envelope-type sales kit containing complete specification sheets on Remington's new ½-hp. model 4 "Roomette"; the ½-hp. model 6 "Bed-fellow"; and the ¾-hp. model 8 "Professional" window units.

Spec sheets covering the 1-hp. and 1½-hp. models 10 and 12 consoles, and the 1-hp. and 1½-hp. Remington "Leader" model air conditioners are also included.

A new full color, "complete line" folder carries illustrations of each basic model in the Remington line and dramatizes the benefits of true air conditioning.

Two distinct direct mail campaigns are provided for the material. One is a four-part mailing campaign supplied Remington distributors to aid in signing dealers. This consists of a large two-color broadside and three return-mailer follow-up cards. The second direct mail campaign is designed for dealer to consumer use and consists of a two-color self-mailer and three large size "return-mailer" follow-up cards.

Supplementing this direct mail material is an envelope stuffer and a single sheet flyer, both in full color, designed principally for use with invoices and monthly statements. A self-mailer and a brochure designed to appeal particularly to the industrial field is also included, as stuffers for motel, hotel, doctor, and dentist prospects. Practically all of the self-mailers carry a return mail postcard requesting the dealer to supply information and a "free home demonstration."

Another item in the merchandising kit is the ad mat catalog offering strong selling mats for dealers' cooperative advertising. A brief description on the sales kit describes Remington's point-of-sale display material which includes an attractive display stand and sign for the window units and outlines Remington's national advertising support.

Remington will continue to offer its "comfort selector" to dealers.

EQUIPMENT FOR SALE

FOR SALE—60 ton cooling equipment as follows: with magnetic starters and automatic controls; 2 Frick 4 cylinder Freon Compressors 4¼ x 4¼ Model F.W.-440; 2 40 H.P.—208 volt—3 phase—60 cycle 1750 R.P.M. motors; 5 Aero fin coils, 4 pipes deep, 18 pipes high 81" x 28"; 1 80 ton Buffalo fan 33" x 42" delivery 20,000 C.F.M.; 3 new American coils model 2600. BOVAL REALTY CO., 313 39th Street, Union City, New Jersey.

WHILE THEY last—relays, all makes, some as low as \$5.00; ¼ h.p. hermetic units, \$47.00; capillary tubes for all sealed units, \$1.35. FERNDALE REFRIGERATION SUPPLY, 806 Flowerdale Street, Ferndale 20, Michigan.

552 BUYS standard brand ¼-HP open type or sealed type complete units. Other sizes up to 3-HP. Write for complete listings on units and parts, including Klaxon overload relays @ 1¢. MANN REFRIGERATION SUPPLY CO., 440 Lafayette Street, New York 3, N. Y.

FOR SALE—brand new ¼ h.p. hermetic compressors. Model 8-88 8¼" high. Complete with relay and overload \$44.50. Send for your list on driers, valves, belts, pressure controls, fittings, relays. Supplies and parts at great savings. Hold on money back guarantee. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

FOR IMMEDIATE sale: 1-40 HP G.E. Freon Compressor, motor, pulleys, belts, base, magnetic starter, protectors & switches. 1-40 HP same as above. 1-condenser, 4-blower coils. Valves, copper pipe, controls and misc. equipment for close hook-up. BOX 3630, Air Conditioning & Refrigeration News.

BUSINESS OPPORTUNITIES

WILL SELL commercial refrigeration business or will sell interest, with privilege of buying, to responsible party having executive ability. Old firm, good franchise, highly profitable. Exceptionally good opportunity. Owner retiring. BOX 3618, Air Conditioning & Refrigeration News.

MISCELLANEOUS

HERMETICALLY SEALED units remanufactured. One year warranty. Norge all models. Hotpoint, G. E. (bottom units), \$49.50. Coldspot, Frigidaire, Westinghouse, Crosley, Kelvinator, to and including ¾ H.P. \$45.00. Other models priced on request. You ship freight prepaid. Return shipment forwarded C.O.D. NORD HERMETIC CO., 1701 San Leandro Blvd., San Leandro, California.

Wanted: a new kind of Crusader



....to help fight
the strongest foe in
the world—cancer.

Who is he? He is any generous person giving freely to the American Cancer Society's Cancer Crusade.

He believes that the light in the "lab" must not be extinguished . . . that his fellows must learn to recognize the symptoms of cancer and the need for early diagnosis . . . that more doctors, nurses and research scientists must be trained.

A victory against cancer now may mean protection for you later. Won't you help us by giving freely—giving generously—giving now? Mail your contribution to "Cancer" care of your local post office.

Help us fight your battle
Give to the
Cancer Crusade of the
**AMERICAN
CANCER SOCIETY**

Formula Set for Salesmen Raise--

(Concluded from Page 1, Column 4)
If they do not receive a salary, the amount of the increase can be paid as a periodic side payment or bonus.

But with the group earning more than 2% commission, any increase in current average commission earnings over base period earnings must be subtracted from the allowed increase before the net increase can be applied to current commissions.

Current commission earnings, according to the WBB, is the average commission earnings over the 52 working weeks prior to the time the increase is given.

Thus, if a commission salesman in this group was earning \$60 per week in commissions during the base period, he would be entitled to a 10% raise—\$6—plus a cost-of-living raise based on the Bureau of Labor Statistics price index (say it rose 5% from the time of the base period to the time of the increase) on the \$66 (base period plus 10%). This cost-of-living raise would amount to \$3.30, giving the salesman a total of \$9.30 allowable increase.

However, the salesman's average of commissions over the past 52 working weeks amounted to \$65. This \$5 increase over base period earnings must be subtracted from the \$9.30 allowable increase, giving him a permitted increase over current earnings of \$4.30.

On the other hand, if the salesman's average of current commissions amounted to \$70, or \$10 higher than base period earnings, he would be entitled to no increase. Neither would he have to take a cut to \$69.30.

If the WBB has approved an increase in the rate of commission since the base period, the salesman is also not entitled to any increase under this formula.

Where salesmen are entitled to an increase, they may be paid in the form of periodic side payments or bonuses. Adjustments in the amount of the increase cannot be made more often than once every six months, the board said.

Fedders Price Cuts--

(Concluded from Page 1, Column 4)
ally would be up more than 150,000 over the 250,000 sold last year.

Newspaper space, radio and television time will spearhead the local advertising effort, Robert E. Caasatt, advertising manager said. He indicated that similar programs are being drafted for other key markets. This will be in support of a national campaign in major consumer magazines.

Murray Albaum, sales manager of L. & P. Electric Co., Brooklyn, Fedders distributor, conducted the meeting. Edward Becker, district sales representative, presented new models.

REMCO DRIERS

STANDARD-DUTY
The lowest-cost, most efficient
DRIER on the market.



These are the ideal low-cost standard duty driers—for use by original equipment manufacturers, field installation or service replacement. With new MOLDED Remco drying element or granular silica gel. Copper bodies 1-5/8" diam. with spun ends. In 1/3 thru 1 H. P. Send for descriptive folder.

REMCO INCORPORATED
ZELIENOPLE, PA.

for all tubing or pipe

Handy Tube Bender

Sizes To Bend
1/4" O. D. to
1 1/4" O. D.

NO KINKS
OR FLATS
PORTABLE
AT LEADING SUPPLY HOUSES

HOLSCLAW BROS., INC.

Mich. Dairy Bill--

(Concluded from Page 1, Column 3)
floor by the Committee on Judiciary to which it was first referred.

Before it can become a law, however, it must be voted upon by the Senate, get through the House and its committees, and be signed by the governor.

The Detroit contractors group is attempting to enlist the aid of all contractors in the state of Michigan in an effort to get the bill passed.

An exception is made in the bill for equipment placed "on the premises of any wholesale customer" provided the equipment is not accessible for ordinary service to the customers of the wholesaler, and that "it is used only for storage and preservation of frozen products distributed by the manufacturer or distributor furnishing said equipment, and that it results in a reduction of the normal number of deliveries and a saving in delivery costs of such distributor or manufacturer."

When new equipment is sold to the retailer, the bill requires that the sale price be the "printed retail list price of the manufacturer, jobber, or other agent, subject to regulation prescribed by the director of the State Department of Agriculture in meeting, in good faith, a competitive price or condition."

CASH OR TERMS ACCEPTABLE

Such sales may be either for cash or on terms, but the latter will mean a down payment of at least one third and monthly installments not to exceed 18 months, the bill states.

The prices on conditional sales contract, according to the bill, "shall include interest at current rates, and shall include installation or maintenance for the life of said contract provided the distributor agrees to perform or cause to be performed such service."

Complete text of Senate Bill No. 49 as it now stands follows:

"Any person, whether or not such person is a producer or an association of producers, who purchases or handles market milk, market cream, or dairy products for resale, including brokers, agents, co-partnerships, cooperative corporation and incorporated associations, who shall furnish refrigeration facilities to retail stores and other wholesale customers, except to the extent that they are reasonably necessary for the preservation of frozen foods distributed by said distributor, except by a sale as provided herein or on a rental basis for reasonable compensation as determined by the director of the State Department of Agriculture, after conducting a survey, shall be guilty of a misdemeanor.

REASONABLE RENTAL INCLUDES INTEREST

"The reasonable rental compensation determined by the director of the State Department of Agriculture must provide for interest on investment, reasonable depreciation, and cost of repairs and maintenance during normal life of such facilities. The sale price of new equipment shall be the printed retail list price of the manufacturer, jobber or other agent, subject to regulations prescribed by the director of the State Department of Agriculture in meeting, in good faith, a competitive price or condition.

"Such sales may be made for cash or on a conditional sales contract, which contract must provide for a payment of at least one third cash and the balance to be paid on monthly installments for a term not to exceed 18 months. The prices prescribed in such conditional sales contract shall include interest at current rates, and shall include installation or maintenance for the life of said contract provided the distributor agrees to perform or cause to be performed such service.

"Provided, however, that nothing in the aforesaid fair trade practice provisions shall be construed to prohibit the distributor or manufacturer from placing such equipment on the premises of any wholesale customer and maintaining the same without charging compensation therefor when he satisfies the director, with facts, that said equipment is not accessible for ordinary service therefrom to customers of such wholesale customer, and that it is used only for storage and preservation of frozen products distributed by the manufacturer or distributor furnishing said equipment, and that it results in a reduction of the normal number of deliveries and a saving in delivery costs of such distributor or manufacturer."

Brunner Profit \$284,779 On Sales of \$8,850,878

UTICA, N. Y.—Brunner Mfg. Co. has reported a net profit of \$284,779.34 on sales of \$8,850,878.54 for the fiscal year ended Nov. 30, 1951, it has been announced by A. G. Zumbrun, president, following the recent annual stockholders meeting here.

Brunner manufactures commercial refrigeration and air conditioning systems, and air compressor equipment.

Zumbrun reported that during the past fiscal year approximately \$400,000 was spent in capital expenses to improve equipment and to increase production facilities. Business forecasts for the 1952 fiscal year indicate a continued growth in sales and new products past the drawing board stage should increase the entire scope of Brunner's operations.

During the last quarter of the fiscal year Brunner received one prime contract for air compressors for the Army Ordnance Department.

Zumbrun was re-elected president at the annual meeting. Other officers include: C. C. Barnhill, secretary and treasurer; Paul T. Rahn, assistant treasurer; A. W. Detwiler, executive vice president; P. A. Lovegren, vice president in charge of production; E. H. Schiller, vice president in charge of purchases; and F. C. Hawk, vice president in charge of sales.

Directors elected for the current year are A. J. Eckert; T. H. Ferris; R. S. Elliott, Jr.; Harrison Sweet; and A. G. Zumbrun, all re-elected; and W. M. Cashin of Boston and John M. Brown of New Hartford, N. Y., newly elected directors.



R. J. SARGENT, manager of appliances at Westinghouse Electric Appliance Div.

Westinghouse Appts.--

(Concluded from Page 1, Column 2)
products as ranges, refrigerators, laundry equipment, home freezers, water heaters, kitchen utilities, and other major household appliances that may be added later.

The headquarters' managers of these departments will report to Sargent who, in turn, will report direct to Newcomb.

Sargent joined Westinghouse Electric Supply Co. in 1936, and in November, 1939, was transferred to the northwestern district (Chicago) of the factory organization. He was separated from the company for a short period during the war and in

May, 1944, rejoined the appliance division at the Mansfield headquarters. At that time he was merchandising manager of the laundry equipment department and since January, 1949, has been manager.

Oliver, as manager of appliance specialties, will have the same broad responsibilities in the supervising and coordinating of all activities for electric housewares, fans, vacuum cleaners, and other appliance specialties that may be added later.

The headquarters' managers of these products in Mansfield and in Springfield, Mass., will report to Oliver who, in turn, will report direct to Newcomb.

Oliver first joined Westinghouse in 1936, after having been with the merchandising department of Iowa Electric Light & Power Co. In 1940 he left Westinghouse to join Proctor Electric Co., and later was elected vice president and sales manager. He left Proctor in 1949 and joined Landers, Frary & Clark. He rejoined Westinghouse in December, 1951.

Westinghouse Suggests List Prices on Dishwashers

MANSFIELD, Ohio — Suggested list prices for the Westinghouse dishwasher were reported recently by a company official to be as follows:

Built-in, under-counter unit—\$306.65 to \$329.96; 24-in. cabinet model—\$327.15 to \$352.02; and 48-in. electric sink, dishwasher combination—\$434.40 to \$467.42.

JUST ASK US!

Turn to "What's New" Page for useful information on new products.

design for water

Specialized air conditioning jobs as at Ortho Pharmaceutical Company's Manufacturing and laboratory Buildings illustrate the flexibility of Bush surface.

Here, in a combination well water and refrigeration job, Bush Water Coils deliver leaving air at a temperature lower than the leaving water.

Something for nothing...? No, merely special attention to water quantity... coil circulating... proper ratio of prime to secondary surface in the coil construction.

If you're using water to heat or cool, check Bush coils or units today. Catalog 425 contains complete specifications.

Bank of Bush Water Coils in main duct. Note intermediate headers, banded top and bottom plates. Roomage per coils. Contractor - A. J. McFarlan, New York, N. Y.

Bush Manufacturing Company

WEST HARTFORD, CONNECTICUT